

ORTHO LETTER

A NEWSLETTER ON ORTHOPAEDIC TECHNOLOGY IN DEVELOPING COUNTRIES

Number 6

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Prosthetics and Orthotics in Cambodia

Cambodia may have the highest rate of disability in the world. In the Cambodian soil there are still over 10 million mines waiting for more victims. A national school of prosthetics and orthotics has been established to train the professionals needed to manage good P&O services in the future. page 2



Community-Based Rehabilitation (CBR)

Community-Based Rehabilitation is a strategy within community development for the rehabilitation, equalisation of opportunities and social integration of all people with disabilities. CBR is implemented through the combined efforts of disabled people themselves, their families and communities and the appropriate health, education, vocational and social services. page 5

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In focus:

Cambodia

As a result of 20 years of armed conflict, it seems probable that Cambodia has the highest rate of disability in the world. Still being to a high degree dependent on foreign aid and expertise, the orthopaedic centres are in great need of locally trained professionals who can ensure the production of prosthetic and orthotic appliances in the future.

The present situation

As in many other mine-ravaged countries today, the number of amputees in Cambodia is very high, in fact more than 30 000. Though the political situation in the country may now be described as relatively stable and though there is hope that the conflict might soon come to a complete end, the number of amputees is likely to grow even higher in the future. There are still some 10 million land mines hidden in the soil, which means that there is one mine for every man, woman and child in the country. The current number of amputations varies from 50 to 100 per month and, without doubt, people will go on being injured for many decades to come. (It may be noted that in the whole world today there are around 100 million mines, which means that Cambodia's share is about *one tenth* of the total number.)

While the great number of land mines and unexploded shells alone present a daily problem for the population, the war has also had other, *indirect* effects that have caused diseases and disability; lack of access to medical care, lack of trained medical staff, lack of vaccination campaigns, lack of sterile conditions and medical supplies have all led to an increasing number of people in need of health services and of prosthetic and orthotic services. Orthotics is currently a much neglected field in Cambodia. Though the group of people who could use orthotic appliances is very great - it may be as large as 60 000 in number - orthotics has not yet attracted the same attention by foreign aid and national rehabilitation projects as prosthetics. Unfortunately, this is a situation which is common in many countries; for people in general, it is easier to see that an artificial limb can help an amputee to walk than to understand the supporting or correcting effects of an orthosis. Hopefully, it will be possible to change this attitude by spreading information and by increasing people's awareness. In Cambodia, the

newly established national school and a long-term national plan for prosthetic and orthotic services are the first steps on the way to creating equal opportunities for *all* people with physical disabilities.

Foreign assistance

Today, prosthetic & orthotic services in Cambodia are to a very high degree dependent on assistance by foreign aid organisations. The first prosthetic operations were initiated by the American Friends Service Committee (AFSC) and Handicap International (HI) in the early 1980s. In close collaboration with the Ministry of Social Affairs, Labour and Veterans, prosthetic workshops

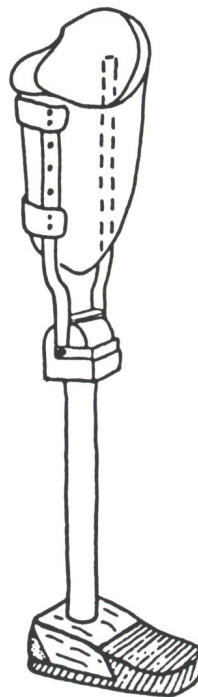
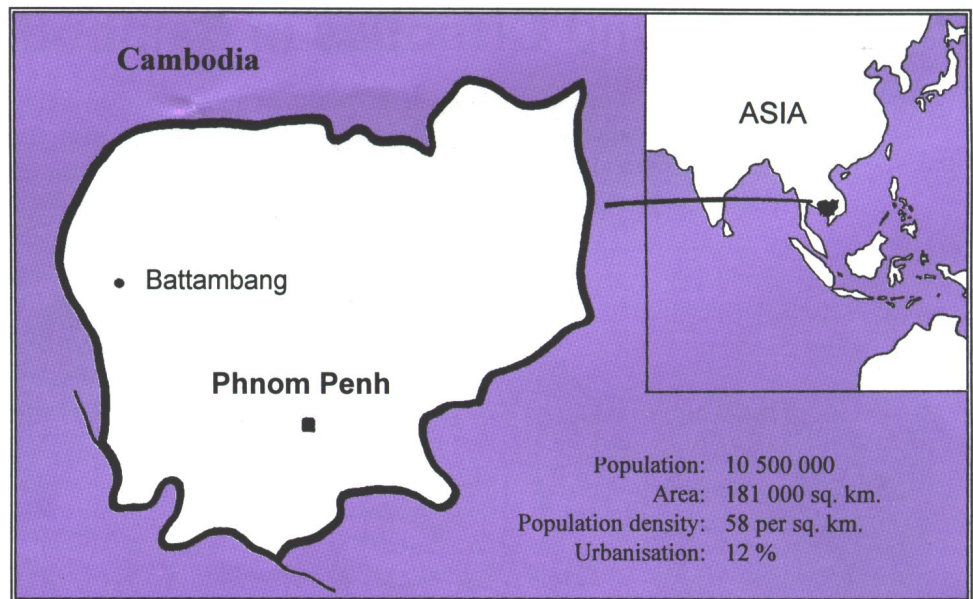


Figure 1. The HI limb with leather socket, flat metal bars, wooden knee, wooden pylon and rubber foot.

were opened in six provinces. At that time, the workshops lacked electricity and the prostheses were made of wood, leather, iron and rubber (Figure 1), using hand tools and simple machines. In spite of difficult working conditions, production figures were high and a large number of amputees were assisted. In the early 1990s, another five foreign organisations started services, both in the capital Phnom Penh and in other parts of the country. Each of the five organisations - the International Committee of the Red Cross (ICRC), the Vietnam Veterans of America Foundation (VVAFA), the Cambodia Trust (CT), the American Red Cross (AmRC) and the Foundation in Support of United Nations (FSUN) - brought its own technology and it was soon found that an agreement had to be made between them, in order to create a uniform provision of prosthetic services nationwide. Though not *all* the organisations have signed this agreement yet, it did certainly improve the cooperation within this field as well as the conditions for sustainable services in the future.

Prosthetic technology

The standard prosthetic technology in Cambodia today is based on polypropylene components [as described in ORTHOLETTER number 3 (1-94)]. The components are made in a factory in Phnom Penh which was established by ICRC. Some *orthotic* components are also produced at this workshop, but the number is still fairly small. The prosthetic components are used in combination with locally produced prosthetic rubber feet of the SACH type (Figure 2). This foot has been developed with the assistance of HI and it is now produced by a private rubber company. The fact that this factory had already been in existence for a long time when this particular line of production started (it was previously manufacturing inner tubes for bicycles) is a good guarantee for continuous production once all foreign support has been withdrawn. The foot is currently made in three sizes - 17, 23 and 25 centimetres long - and the materials are all locally available; the keel is made of recycled polypropylene (from the prosthetic production) and

natural rubber is found in the eastern part of the country. Since 1992, over 10 000 pairs of the foot have been produced and some of them have even been exported to neighbouring countries.

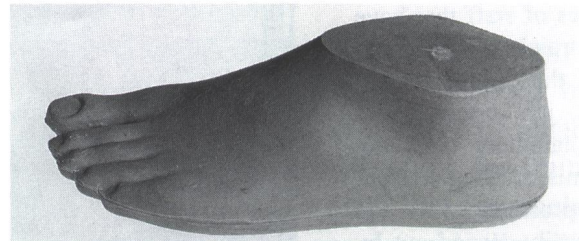


Figure 2. A locally produced rubber foot is used in combination with polypropylen components.

Both the polypropylene components and the rubber feet are distributed from the factories in Phnom Penh to orthopaedic workshops in other parts of the country. Available services, which consist of seven regional centres and six provincial workshops, have proven to be very efficient; the total production of prostheses in Cambodia is presently more than 5000 per year. □

Educational Training in Cambodia:

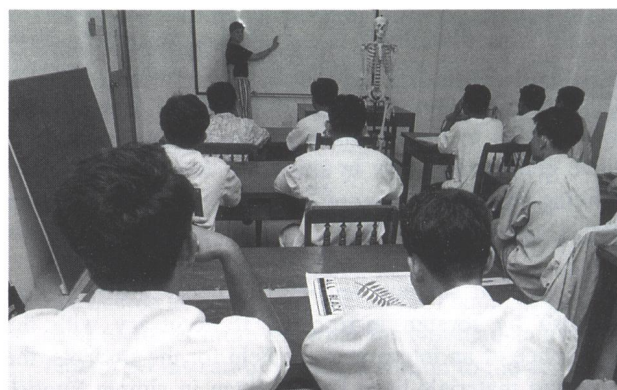
NSPO - National School of Prosthetics and Orthotics

Without any doubt, the only real chance for Cambodia to ever take care of all people in need of prostheses and orthoses lies in the hands of well trained professional staff. The first training courses for personnel in prosthetic services was started by HI and AFSC in the 1980s. The training was held at a low level since basic education at that stage was almost none-existent. To date, over 100 prosthetic technicians have taken this course. This has been of great importance for the development of prosthetic services so far. However, since it is clear that the services must be locally staffed and operated in the future, the training level of this group (which corresponds to category 3 according to a classification made by the International Society for Prosthetics and Orthotics, ISPO) will not be sufficient to meet the need for qualified staff in a long term view. For the future, a category 2 training level (equal to that of an orthopaedic technologist) will be required, and it is clear that the training of such personnel must include orthotics. On the basis of WHO guidelines, the country would need at least 100 staff of that training level in order to establish minimum services for the great number of people with disabilities. This is a huge task demanding hard and determined work by all parties involved.

The school

Following an initiative of the Cambodia Trust, discussions on setting up a new school for training of category 2 staff started in early 1993. A group of representatives of six international organisations, the Ministry of Education and the Ministry of Social Action, Labour and Veterans Affairs met and drew up the

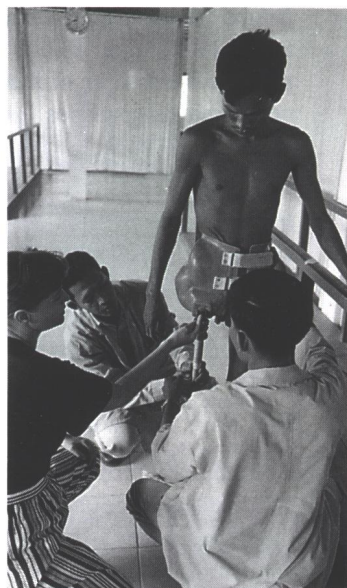
general outline for the course. With funding by CT and AFSC, the renovation of a school building was begun. This was in September and in January 1994 the new National School of Prosthetics and Orthotics, NSPO, could open its doors to the first group of seven students, all with previous experience in the rehabilitation field. In 1995 and 1996, another two groups of 12 students each were admitted. This number is likely to be the annual intake in the future.



Theoretical training at NSPO.

The course lasts three years; there are two years in school and one year of clinical work at an orthopaedic centre. The final year aims at the rounding of the student into a balanced and experienced professional. Each school year consists of 48 weeks and each week of 37 hours. The total instruction time is 3400 hours, of which one third is theory and two thirds are practical training. The curriculum is based on the current WHO/ISPO guidelines. Since the education base in Cambodia is still inadequate, however, the level of academic instruction is by necessity not particularly high.

It is a fact that prosthetic and orthotic services in Cambodia will also have to rely on other categories of staff that have less training. In this context, the chance to provide job opportunities for amputees must not be missed. Bench work and prosthetic work can be easily carried out by people with disabilities. The training can be "on-the-job", but a special course for this purpose might perhaps be set up in the future.



Practical training in prosthetics.....

The subjects

The theoretical subjects that are taught at NSPO are Physical Science (44 hrs), Biological Science (272 hrs), Mathematics (40 hrs), Materials Science (32 hrs), Biomechanics (64 hrs), Psychology (112 hrs), Communication (32 hrs) and the main topic Prosthetic and Orthotic (P&O) Theory. All these subjects, except for P&O Theory, are taught in the local language (Khmer) by external lecturers coming from other schools in Phnom Penh. Communication and Psychology, which are subjects often neglected at other schools, play an important part in the training. Communication studies are essential as they provide skills in everything from writing reports to taking clinical notes. This will be of great importance since many of the students will be future team leaders and workshop managers. A knowledge of psychology is also very useful. In Cambodia, as in many other countries around the world, the attitude to people with disabilities is not always favourable; they are often considered to be bad or unlucky people. Consequently, they are sometimes isolated from society, which adds to their problems. The psychology classes have gone a long way in analysing these problems and making the students more aware of the needs of their future patients.

The practical subjects and P&O Theory are taught in English by foreign instructors, if necessary with the assistance of an interpreter. To help for the students, the teaching materials have been written in simple English and pre-school language courses have also been provided. Though the aim for the future is to give all the instruction in the local language, a knowledge of English will still be important since it will help the staff in their contacts with colleagues in other countries.

There is a temptation in Cambodia to teach just the single polypropylene technology; in fact, however, great efforts have been made to broaden the field. It may be said that no one *technology* is taught, but rather the *application of principles*; how to take a cast, to fit the socket, to make the alignment, to make a cosmetic finish, etc., i.e. work that is done in any one technology used.

Assessment of the teaching methods and of the level of understanding is a high priority. Written exams are carried out at the end of each teaching module and practical assessments by staff from the international organisations are carried out every term.

The present staff

The school has four expatriate staff members, three of whom are Prosthetists and Orthotists and involved in clinical teaching and P&O Theory. One is a workshop instructor who, along with two Cambodian technicians, is responsible for practical sessions. The first graduates of the school are intended to replace the expatriate staff in the training system. The best of them will be encouraged to train as P&O teachers. This aim will only be achievable in 3 - 5 years time since the new staff first have to gain relevant practical experience in the field as well as in teaching.

The future

The most important facilities are all in place in Cambodia; there is a national plan for the P&O sector, there is local production of components, there are workshops providing service for people with disabilities and there is a school for training skilled staff. This should be seen as the first step towards sustainable prosthetic and orthotic services. However, the road is long and a lot of work still remains to be done; prosthetic production needs to be raised and orthotic services have not yet been addressed in a meaningful way. Since it cannot be expected that the government of Cambodia will be able to invest heavily in rehabilitation when there are so many other pressing needs throughout society, it will still take many years before the services can be run by local staff alone. Until then, the services will have to rely on continuous collaboration between aid organisations and the government, which in fact is an approach that has proven to be very successful in the Cambodian scenario this far. □



...and orthotics.

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Promoting equal opportunities for persons with disabilities

Community-Based Rehabilitation (CBR)

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It is a disturbing fact that around 100 million people with disabilities in developing countries do not receive meaningful rehabilitation. In order to improve this situation, the World Health Organization, WHO, has developed a strategy which ensures that rehabilitation services are available to disabled persons in their communities. The concept, which is known as Community-Based Rehabilitation, or CBR, is based on rehabilitation procedures that have naturally developed among disabled people themselves, their families and other people in the community. The methods have then been further elaborated by WHO and are described in a manual which is available in several languages.

Community-Based Rehabilitation is built on the idea that family members, assisted by a CBR worker with basic knowledge of rehabilitation, are often the best resource for training the disabled person. Through this approach, as many as 70 % of the people with disabilities can receive meaningful rehabilitation in their own communities. The conventional rehabilitation services, such as hospitals, physiotherapy departments and orthopaedic centres, still play an important roll for those who cannot be assisted in the community but need more specialised service. The CBR programme and the conventional services should therefore be seen as *complementary* to each other. It is only when strong links have been established between all rehabilitation facilities in a country that the services can be successful.

Why CBR?

Before describing how the idea of CBR developed, how the work is organised and what the results of such an approach may be (see illustrated examples throughout the article), it is necessary to understand why there is a need at all for an alternative approach to rehabilitation. It is obvious that the situation for most people with disabilities in developing countries is very difficult and that the conventional, western type of rehabilitation service alone has not been able to deal with the needs arising. When looking at the problems that exist, it is natural to ask oneself if there is any way that rehabilitation services could be improved. The following facts concerning the situation of disabled people may help us to frame some relevant questions:

- There are around 300 million people with more severe disabilities living in developing countries. Probably 100 million of them need rehabilitation, i.e. medical care, training and assistive devices (orthopaedic appliances, mobility devices, devices for hearing and visual disabilities, devices for everyday living etc.). Many of them also need help in finding a suitable job or other ways to earn their living. However, only about 2% (one person in 50) have access to some kind of rehabilitation service.

What can be done to improve this situation and make sure that many more people with disabilities can receive rehabilitation services?

- In many countries, rehabilitation services are only offered at a few institutions, such as major hospitals and special homes for disabled persons. Similarly, education and jobs for people with disabilities are only found at special schools and sheltered workshops. Since these institutions are often situated far from the disabled persons' homes, it is common for this group of people to live apart from the everyday life in the community; they are *segregated* from family, friends and society.

What can be done to provide disabled people with rehabilitation services, education and jobs in their home environment?

- It is still common in many countries that attitudes to disabled people are negative and that this group is considered as bad and of less value. People in general tend to focus more on what the disabled individual *cannot do* instead of paying attention to the activities that the person is actually *able to perform*. Thus, there is often lack of awareness and understanding of the disabled individual's potential.

What can be done to change people's attitudes to disabled people?

- People with disabilities often do not have the same opportunities as other citizens. Quite commonly, for example, because of difficulties in moving, seeing, hearing or understanding, disabled people have only limited access to markets, shops, transport, cultural

events and sports, etc..

What can be done to provide disabled people with the same opportunities to participate in daily activities as other people?

- People with disabilities sometimes have difficulties in expressing their views and standing up for their human rights and their own welfare. It is a fact that they need support to change this situation.

What can be done to encourage disabled people to take more action so that they can gain the same opportunities as other people?

A broader meaning of rehabilitation

As we can understand from the presentation of the problems above, the *need for rehabilitation* may in fact be expressed in many ways and include much more than just the need to restore a person's physical abilities, i.e. to improve his/her mobility, hearing or seeing, etc.. Though physiotherapy and the provision of assistive devices are of course highly essential features in rehabilitation, it is clear that this process must lead even further; a person should not only be able to move about but should also be able to function as an independent member of society and have the same rights and opportunities for education, work and social life as other people¹. Community-Based Rehabilitation aims at giving people with disabilities these opportunities; it aims at physical *and* social rehabilitation. In other words; it aims at *integrating* disabled people into society.

Can CBR help?

Community-Based Rehabilitation is one way to deal with the difficulties described above. Since its aim is to provide rehabilitation in the disabled persons' communities, it can involve many more disabled people than conventional rehabilitation services have ever been able to do, especially in rural areas. The disabled person can continue staying with his/her family during the rehabilitation and does not have to travel long distances or stay away from home for a long time, which means that he/she will not be segregated from society.

Another very important feature of the CBR work is to give information to community members so that they

can better understand the situations of disabled people, their problems, and the potential that these individuals have. Correct information will make it possible to change people's attitudes to disability and to create a good atmosphere for cooperation. Once the rights of disabled people have been recognised by the community, it will also be possible to create conditions that allow people with disabilities to participate in daily activities; gradually public services can be adapted so that individuals in wheelchairs or people with hearing or visual deficiencies can have the same access to services as other people.



A blind person may be assisted by the CBR worker and the family members to find his/her way about near the home. Thus, he/she may be able to live a more independent life.

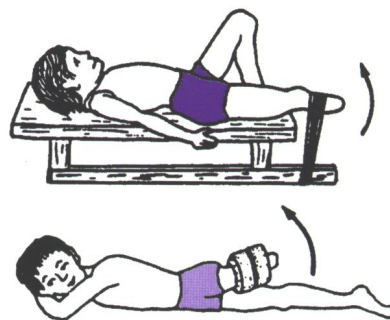
The idea of CBR is based on solidarity, participation and the recognition of human rights, in the sense that all people are equal and should have the same rights in society. If information is given to the community, and if disabled people and their associations receive direct

encouragement, the disabled persons will be helped to fight more actively for their rights to equal opportunities in education, jobs and access to public services.

How did CBR develop?

In the 1970s, the World Health Organization, WHO, made a study of the situation of disabled people in developing countries to see if there was any way that rehabilitation services could be improved so as to reach more people. A team consisting of a rehabilitation doctor, an occupational therapist and a physiotherapist visited several countries

where they could see various aspects of rehabilitation. In some places rehabilitation was very expensive and needed many professional specialists and expensive material for training. Because of the high costs, however, only a few rehabilitation institutions were in existence. It was also observed that the number of trained rehabilitation professionals was far from sufficient. And even if training courses for these staff were available, it would take too many years to train the number required.



In order to prepare amputees for the fitting of prostheses, the CBR worker can instruct them in exercises that strengthen the muscles needed for walking. When the amputees return from the orthopaedic workshop to their homes, the CBR worker can assist in training activities with the new prosthesis.

¹ These are some of the basic rights of disabled people that were adopted by the United Nations in 1993. The complete rights are presented in the document *The Standard Rules on the Equalization of Opportunities for Persons with Disabilities*. (See also the information on page 12.)

The WHO team could also see what they called good examples of natural and spontaneous rehabilitation being conducted in the disabled person's own village:

- Mothers and fathers gave valuable training to their children;
- Family members, friends and neighbours helped to make assistive devices, such as crutches, seating aids, toys for stimulation or trolleys on which disabled children could move around pulled by other children;
- Teachers found ways to help disabled children attend school.

The team collected many such examples and started to analyse them. Did they have anything in common? One thing that they found was that the community (parents, other family members, neighbours and others in the surroundings) played an active role in the disabled person's life. If the final aim of rehabilitation is for the disabled person to be *integrated* in society, i.e. to live an active life together with other people, then this was surely good rehabilitation! The members of the team were convinced that this kind of rehabilitation could be further developed and that it could be spread so that many more people would benefit from these good attempts.

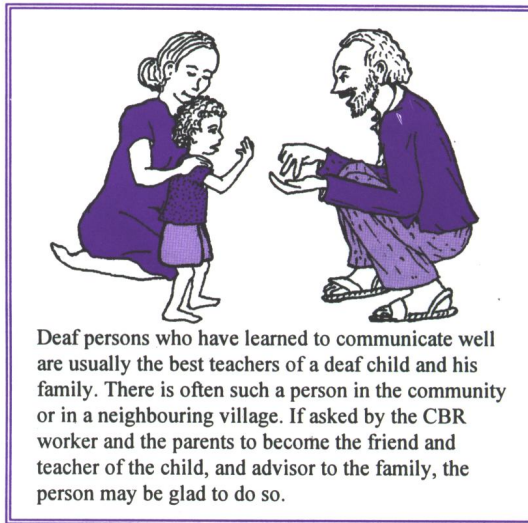
Thus, based on experiences from local villages and on methods developed by disabled persons themselves, their families and other people in the community, the idea of providing rehabilitation service in the disabled person's own community, or *Community-Based Rehabilitation* (CBR), had been created. If further developed, this could certainly be one way to improve rehabilitation services around the world.

Establishing the idea of CBR

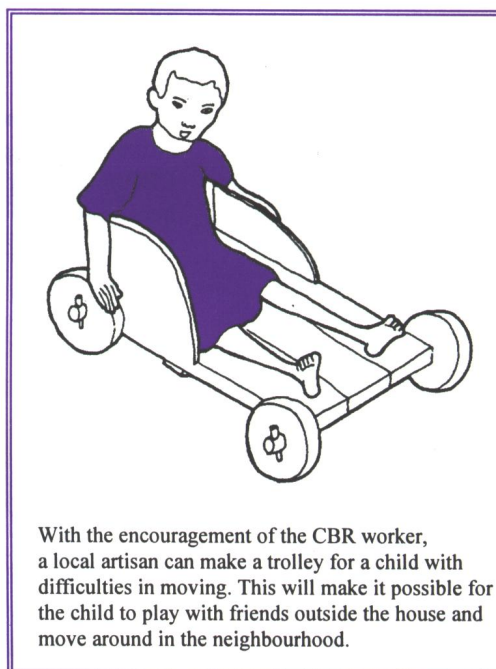
If some support could be given to the people in the disabled person's community, the result of the rehabilitation would probably be even better. With this in mind, the WHO team started to prepare manuals and other training materials for community members. Those who were going to use this material would generally have only a few years of schooling and the information should therefore be easy to read and understand; instead of using diagnostic terms, like *paraplegia* and *Down's syndrome* for example, the text should describe disabilities in a more general way, such as *difficulty in moving* or *difficulty in learning and understanding*.

In 1979, the first version of the WHO manual *Training*

in the community for people with disabilities was published. Apart from having a text that was easy to understand, it had many illustrations to show how training could be performed and how assistive devices could be made. The manual was then field-tested in many countries, evaluated and revised several times, most recently in 1989.



(in the medical, social, educational and vocational fields), community leaders, community workers, parents' associations, women's associations, and in fact nearly all kinds of individuals linked to people with disabilities. By united efforts, the implementation of the CBR strategy could start and pilot projects could be set up.



The first CBR programme was established in the Philippines, followed by countries in Africa, for example Kenya and Zimbabwe, and Asian countries, such as Sri Lanka, Vietnam and India. The size of the programmes varies, ranging from small pilot programmes covering only a few villages or a township, to nation-wide programmes with many thousands of people involved. Some were established by governmental authorities, others by NGOs (non-governmental organisations). More programmes are now slowly starting in West African countries and in Latin America, and they can also be found in western countries, including Canada,

Sweden and Italy. Altogether, CBR programmes presently exist, in one way or another, in about 60 countries.

How is CBR organised?

CBR may be organised in several ways which may vary from one country to another, or even from one village to another, depending on local conditions, resources and needs and on which organisations and associations are involved in the work and the strategy they have chosen. However, the basic idea of the structure is usually the

same. The organisation is often presented as a triangle (Figure 1) in which the top side may be said to correspond to the community level of the programme. Here, **disabled people and their families**, who should also be seen as an important resource and an essential part of the organisation, are supported by **CBR workers**. Another important feature at community level is the **community rehabilitation committee**, which is responsible for plans and local management of the CBR programme.

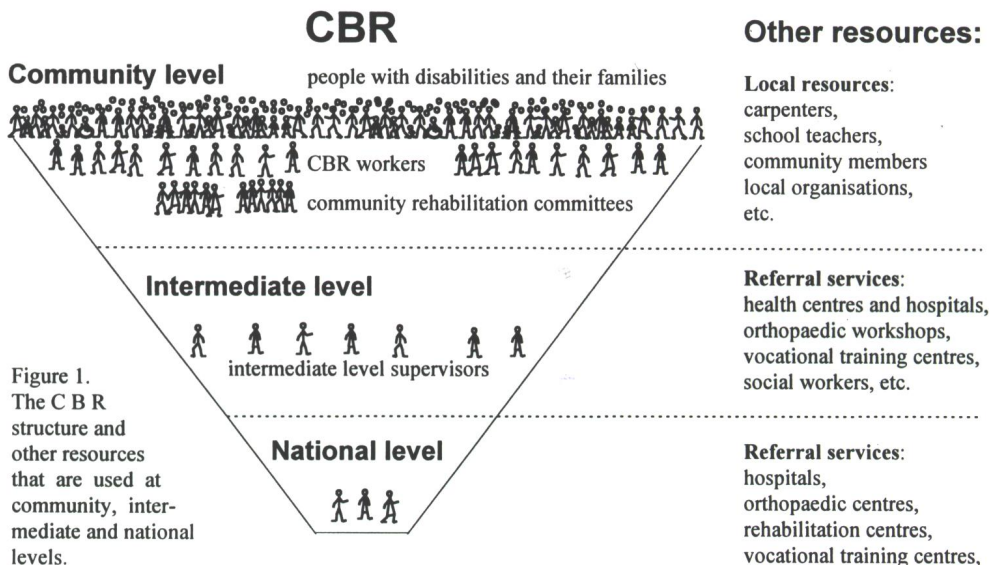


Figure 1.
The CBR
structure and
other resources
that are used at
community, inter-
mediate and national
levels.

As may be understood from the name, the major part of Community-Based Rehabilitation is conducted at community level. Nevertheless, people at this level will also need support from workers in a nearby city or in a major town in the province, i.e. at district or regional level. In a CBR programme, these workers are called **intermediate level supervisors** and they are usually responsible for the overall management of the programme in a certain district.

The planning and coordination of a country's complete CBR programme is done at national level, which in the figure is represented by the point on which the triangle is standing. The few people that are involved in the programme at this level must make sure that the national planning is influenced by people at community level.

In parallel with the CBR structure, other available resources should of course also be used. In the community, for example, carpenters may assist in the production of mobility devices and school teachers may help in the promotion of education. At intermediate and national levels, the services provided by hospitals, orthopaedic workshops and vocational training centres are other resources that should be used; if a person with disability cannot achieve appropriate rehabilitation in the village, he/she will need to be sent to these **referral services**.

Thus, a CBR programme is implemented and run through the combined efforts of disabled people themselves, their families and communities, CBR staff

and appropriate health, educational, vocational and social services at all levels in the country. One of the tools for the CBR work is the **WHO manual Training in the community for people with disabilities**.

The components of CBR

To gain a better understanding of the work that is conducted at each level and the relation between these levels, some details of the various CBR components are presented below:

Other resources:

1. The disabled person and the family

Conventional rehabilitation services are often provided by specialised professionals who see disabled people merely as *objects* for their interventions. Gradually, however, it has become clear that people with disabilities, as well as their families, can actively *contribute* to the work in the rehabilitation process and that they should be seen as resources. In a *CBR programme*, the disabled person and the family are most often the very focal point of the rehabilitation. Together with the CBR worker, they are the ones who should decide which measures should be taken in the rehabilitation and when this should be done. It is the role of CBR to support the disabled person and the family members so that they will be able to take these decisions and to do the main part of the everyday rehabilitation work.

2. The CBR workers

Apart from the disabled persons and their families, *the CBR workers* are the key persons of a CBR programme. The CBR workers (who may also be called *local supervisors*, *community health workers* or similar - the term varies from country to country) are most often volunteers of a national organisation and they work only a few hours per week. In rare cases, however, they may also be full-time government employees. Since it is important that they know the local people well and since it is absolutely necessary that they speak the local language, the CBR workers

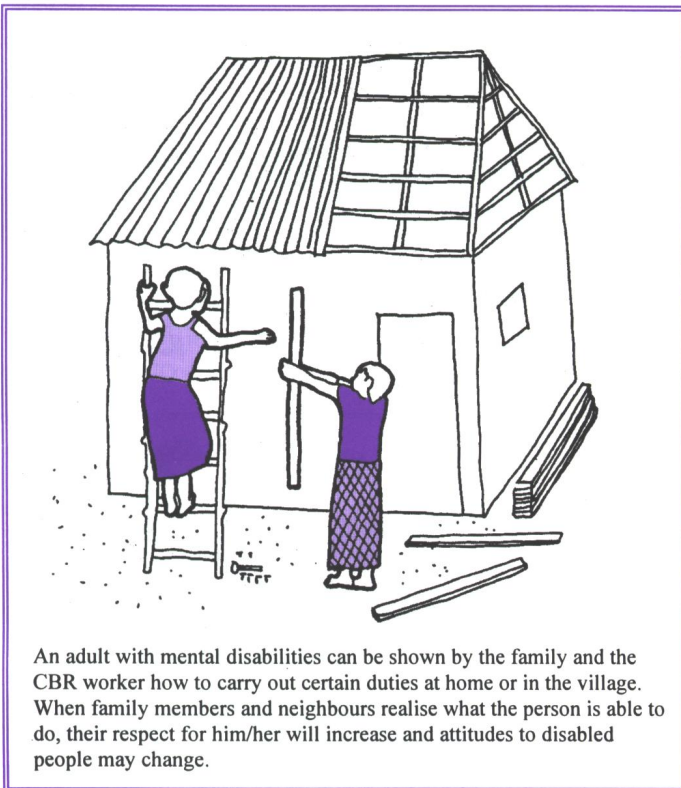


The CBR worker can encourage a local carpenter to produce crutches for people who have difficulties in moving about.

normally come from the community where they are working. It may be an asset if the CBR worker has a natural link with the field of rehabilitation, for example being the mother of a disabled child, a social worker, a health worker or a school teacher. However, the person's interest and commitment to the tasks to be carried out is of high value and may be even more important than previous professional knowledge.

After a few weeks of training in CBR methods, the CBR worker will be responsible for assisting disabled people in a community which may consist of one single village, a group of small villages or part of a town. Working with a population of around 1000 people, one of the CBR worker's first tasks will be to visit all families in the community, to identify and register people with disabilities and to find out their needs for rehabilitation. Having done this, he/she should suggest the training material to be used for those who need training and should identify the person who will be responsible for the exercises, often a family member.

The training activities should be simple and need to be done repeatedly if they are to be effective. If well explained, they will be easy to perform. The CBR worker should follow up the training on a regular basis, for instance once a week, and after an appropriate time an evaluation should be made to ensure that the training is successful.



The CBR workers should be well informed about all other rehabilitation services that are available, in their own villages and at other levels in the country. They should be able to know how and when to refer disabled persons to these services and they should also assist these people on their return to the village. A person with an amputation, for example, cannot normally be supplied



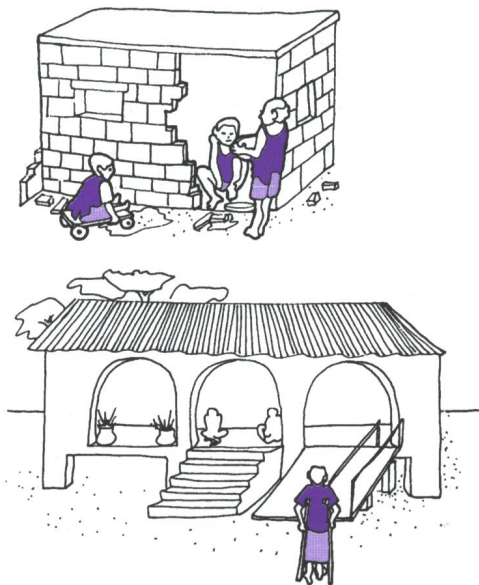
with a prosthesis in the village. The duty of the CBR worker is therefore to contact the nearest orthopaedic workshop and make sure that they can produce the type of appliance that the disabled person would need. When the amputee returns to the village with the newly fitted artificial limb, the CBR worker should be able to give advice on training and on how to adapt the home to suit the disability. Furthermore, if problems occur and repairs or adjustments are needed, the CBR worker should be able to say whether the amputee should return to the orthopaedic workshop or whether the necessary measures can be taken in the village with the help of local craftsmen. Thus the duties done by the CBR worker may also be of great help for prosthetic and orthotic staff at the orthopaedic workshop.

Apart from work which aims directly at physical rehabilitation, the duties of a CBR worker also involve the changing of attitudes to persons with disabilities and the creation of necessary conditions in the community for an integration of disabled people in society. This work is done in close collaboration with the *community rehabilitation committee* (see below).

3. The community rehabilitation committee

CBR should be seen as a programme that first and foremost belongs to the *community*; this is where the people with disabilities are found, as are many of the resources that can be utilised in the rehabilitation work, such as the disabled person's family, neighbours and local artisans etc.. A CBR programme cannot be introduced in the community without the approval and help of its members. Therefore, and in order to firmly establish the programme, a *community rehabilitation committee* is set up for the management of the programme. The committee consists of community leaders and people who are interested in taking action on disability matters.

While the *CBR workers* are active more in the *practical* part of rehabilitation, the role of the community rehabilitation committee is to *provide information* about disability to people and authorities at community level, so



Some community members with disability may need to make changes to their homes so that they can move around more easily. For example, a doorway may need to be widened for a wheelchair or a trolley to pass through. Community buildings may need slopes or ramps so that everybody who wants to can have access to these buildings. The community rehabilitation committee and the CBR worker should promote such measures so that the lives of people with disabilities can be improved.

that attitudes to disabled people can change and their rights be respected. The committee can also encourage both the creation of local job opportunities for disabled people and a local production of assistive devices. Once awareness is created in the community and the attitudes start to change at this level, more pressure will be put on national leaders to follow the rules on equalisation of opportunities for disabled people that normally exist in a country. Thus a local CBR programme may also have important effects on the situation at national level.

4. The intermediate level supervisor

At intermediate level (between community and national levels), a CBR programme is normally managed by an *intermediate level supervisor* (sometimes also called *mid-level rehabilitation worker*). This is often someone with a professional background, such as a physiotherapist, occupational therapist or social worker. The intermediate level supervisor should have a thorough knowledge of CBR and needs longer training than the CBR worker. "Community skills" are also important, i.e. being familiar with the local environment, people's problems and wishes, and knowing how to rouse people's interest for participation.

Working for the government or an organisation, the intermediate level supervisor is normally a full-time employee whose task is to assist a number of communities of a certain district in the planning and managing of the CBR programme. His/her main duties are to train all the CBR workers in that district and to guide and support them in their work. When there are severe cases of disability that the CBR worker cannot cope with, the intermediate level supervisor is the person who should be able to help. Additional tasks may also be to inform and train other groups in the community, such as the community rehabilitation committee, teachers, health workers etc..

5. Referral services

It is a fact that community services alone cannot meet all rehabilitation needs. More severe cases will always have to be referred to services that are more competent. Nevertheless, two out of three persons with disabilities (70 % of the need) can receive meaningful rehabilitation in the community. Remaining needs should be taken care of by *referral services*, such as hospitals, orthopaedic workshops, rehabilitation centres, special schools and other facilities at intermediate levels (district, regional or provincial levels) and at national level (Figure 2). At these centres, which should be seen as part of the total CBR approach, professional expertise, such as doctors, physiotherapists, occupational therapists, prosthetic and orthotic staff and social workers, should be able to help the severely disabled people.

Community level



70 %

Intermediate level



20 %

National level



10 %

Figure 2. In a CBR programme, the needs of 70 % of the disabled persons can be met at community level, while 20 % will need assistance at intermediate level and 10 % will have to be referred to rehabilitation services at national level (most often in the capital).

It is important to see that *cooperation* between CBR and conventional services is essential and, in fact, of mutual interest. A highly qualified doctor, for example, will be able to devote his time to the difficult cases he has been trained for, instead of dealing with easier cases that can be handled by other staff, such as CBR workers. Also experts in other than medical disciplines, such as teachers, vocational trainers, social workers and technicians, should be regarded as resources. It is important to use all these resources, both as referral services and, if feasible, in the training of CBR staff.

6. The WHO manual

Some of the rehabilitation methods that are used in CBR are described in the WHO manual *Training in the community for people with disabilities*. The manual is a tool for the people working in the community. It gives them instructions on how to train and guide people with disabilities and how to make services and buildings in the community more accessible for these persons.

The complete manual consists of 35 booklets, the first of which gives an introduction to the concept of Community-Based Rehabilitation and some general instructions on how to use the manual. 30 of the booklets are training packages, each with a simple text and illustrations, to be used by family members and CBR workers. Apart from six packages which give useful information on breast-feeding, play activities, schooling, social activities, household activities and job placement, the remaining packages are aimed at the following seven categories of disability:

- Difficulties in seeing
- Difficulties in hearing and speaking
- Difficulties in moving
- Loss of feeling in the hands or feet
- Strange behaviour
- Fits
- Difficulties in learning

In addition to these training packages, there are guides for *CBR workers*, *people with disabilities*, *the community rehabilitation committee* and *schoolteachers*. These four guides are intended to give a more complete understanding of CBR methods and advice on how people in the community can use the manual.



Family members of people with Hansen's disease (leprosy) can help to examine insensitive hands and feet to prevent blisters, scratches or cuts turning into severe infections, which may in turn result in deformities. The CBR manual gives instructions on how to protect hands and feet from injuries, how to take care of them, and how to use them.

Training of CBR staff

Training of CBR staff is a crucial issue. Though the courses are short, the training should be able to provide the necessary basic information. A CBR worker, for example, should have a *broad* knowledge of rehabilitation (though not necessarily a *very thorough* one since expertise should be available at other levels to deal with more complicated cases). CBR workers are trained by the intermediate level supervisor, who in turn should have a background as a professional in rehabilitation with further up-grading in this field and special training in CBR methods. Such training courses require available experts to be used as teachers,

which means that these persons will also have to adapt to a new philosophy in which the disabled person and the family are no longer seen as objects but as resources in the rehabilitation process.

A nation-wide CBR programme requires a very large number of CBR workers. Since these workers are normally working on a voluntary basis, it is easy to see that some of them may have to leave their duties after a while. In some countries, the drop-out rate may be considerable and CBR courses need to be held continuously to fill the gaps. This is unfortunate, but it is also a fact that *all* those people who have taken the course, whether working in a CBR programme or not, will - in one way or another - contribute to the total awareness of disabled people's situation that is being raised in a country. Thus, a high drop-out rate does not necessarily mean that the programme has failed.

Conclusion

To sum up, the basic aims of a Community-Based Rehabilitation programme are the following:

- to integrate people with disabilities in society;
- to give people with disabilities the same rights as other people;
- to encourage people with disabilities to be active community members;
- to create awareness about disability in the community, thus changing people's attitudes to people with disabilities;
- to see people with disabilities, their families and other members of the community as important resources in the rehabilitation process;
- to increase the competence of school-teachers, health personnel and other, local resource persons;
- to promote local production of basic technical aids and appliances;
- to admit people with all kinds of disabilities into the programme.



The CBR worker has an important role to play in training children with polio. The worker must motivate, teach and encourage the family to carry out the daily activities that are needed to prevent contractures in the joints.

ORTHOLETTER will publish more information about Community-Based Rehabilitation activities in future issues. Special emphasis will then be given to the linkage between CBR programmes and prosthetic and orthotic services. □

Note that the illustrated examples presented in this article can only describe a very limited part of the CBR work and that there are innumerable other rehabilitation situations that may also be representative for CBR in practice.

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For more information on Disability, Rehabilitation and CBR:

The WHO manual *Training in the community for people with disabilities* can be obtained from the nearest WHO regional office or from the headquarters in Geneva: World Health Organization, Distribution and Sales, CH - 1211 Geneva, Switzerland. Fax: +41 22 791 07 46. Phone: +41 22 791 21 11. The manual is published in several languages. In some countries, local versions may be found.

Disabled Village Children is a book of information and ideas for all who are concerned about the well-being of disabled children. With over 4000 drawings and 200 photos, it contains suggestions for simplified rehabilitation, low-cost assistive devices and ways to help disabled children find a role and be accepted in the community. The book can be ordered from The Hesperian Foundation, P.O. Box 1692, Palo Alto, CA 94302, USA. Fax: +1 415 325 9044.

AHRTAG (Appropriate Health Resources & Technologies Action Group) in London publishes a newsletter, *CBR News*, in English and Hindi about CBR activities and the development of CBR programmes. It can be ordered from AHRTAG, Farringdon Point, 29-35 Farringdon Road, London, UK, EC1M 3JB. Fax: +44 171 242 00 41. Phone: +44 171 242 0606. The subscription is free to readers in developing countries.

DIS (Disability Information Service) is a collection of written materials on disability and rehabilitation in developing countries, with an emphasis on Community-Based Rehabilitation. For further information please contact AHRTAG (see address above).

The Standard Rules on the Equalization of Opportunities for Persons with Disabilities is a document from the United Nations on the rights of disabled people. This document has been ratified by most countries and is a tool to make governments, authorities and organisations aware of their responsibilities and raise their concern for the situation of disabled people in their own country. It can be ordered free of charge from Disabled Persons Unit, Division for Social Policy and Development, Department for Policy Coordination and Sustainable Development, United Nations, DC2-1342, New York, NY 10017, USA. Fax: +1 212 963 3062. The document is printed in English, French and Spanish. It is also available on Internet, <http://www.un.org/DPCSD>, and is called A/RES/48/96.

Announcement:

24 - 26 January 1997, XII National Annual Conference of Orthotics & Prosthetics Society of India (OPSI) at Agra.
Contact Mr Vinay Kumar Asthana, Organising Secretary, 118/189, Kaushalpur, Kanpur, India.
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