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Mushroom cultivation for people with disabilities

A TRAINING MANUAL



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Regional Office for Asia and the Pacific
Bangkok, Thailand
2001

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A TRAINING MANUAL

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Mushroom Production training for Disabled People



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Forward

In the Asia and Pacific Region, there are about 500 million hungry people, out of estimated 800 million undernourished in the world. Two third of the hungry and poor are living in rural areas. There is a high correlation between poverty and hunger. There may be ample food available in any specific country, yet individual persons or households, particular the rural poor, may not be able to purchase the food needed for a healthy life. FAO's main objective is to achieve universal food security. Also the Asia-Pacific region should be free from hunger and poverty, and FAOs programmes are designed to address food insecurity and sustainable agricultural development in rural areas. Farmers with disabilities are among the poorest of the poor. Because of their disability, they are often not given the same opportunities to develop their potential capabilities, and live like active members within society. FAO has appointed a focal point within the Rural Development Division to promote and coordinate international, regional and country level support activities for capacity building of disabled farmers and rural disabled people.

The FAO Regional Office for Asia and the Pacific (RAP) pioneered a training programme for disabled farmers in the poor northeastern part of Thailand with funding from its Technical Cooperation Programme (TCP): *Mushroom production training for disabled people TCP/THA/8821(A)*. The TCP technical capacity building activities were designed and implemented by a joint RAP officers team in close collaboration with the Ministry of Labour and Social Welfare of Thailand. The project strategy aimed at expanding the outreach and impact of mainly vocational training programmes for the promotion of non-farm and formal sector wage earning skills. It also included skills training for agro-based small enterprise development by disabled farmers. The activities were carried out in Ubon Ratchathani province in the Training Center for Disabled People. The FAO inter-disciplinary taskforce provided technical assistance and expertise on mushroom production, marketing, design and use of processing equipment, criteria and guidelines for disability and gender response. It also dealt with awareness building, extension of technical skills and small enterprise development. As a result of the well-coordinated project inputs, many trainees became successful mushroom farmers and a few became trainers.

The pilot training and mushroom production activities were largely developed as part of "learning by doing", guided by a successful Thai mushroom entrepreneur and national trainers and extension workers from the Ministry of Agriculture and Cooperatives. Yet to facilitate the further replication of this successful pilot project, there was a need to develop a mushroom production-training curriculum for disabled farmers, post-anthem in English, covering the entire training process. The FAO lead technical officer, Wim Polman, responsible for rural development at the FAO regional office in Bangkok, coordinated the preparation of this first training manual, written by FAO international consultant Johanne Hanco. Cultivation procedures were developed, tested and revised by the two national consultants, Satit Thaithatgoon, a renowned Thai entrepreneur and mushroom cultivation expert, and Prasert Wuthikamphee, an expert from the Ministry of Agriculture and Cooperatives from Thailand. Mr Thaithatgoon further provided technical support and revisions for the publication.

The manual is intended as a training and information tool for government and non-government trainers and extension workers on the subject of income generation for people with disabilities through mushroom production. The training manual is divided into two main parts. The first describes each phase of the training process, and the second gives a detailed and illustrated hands-on description of every task involved in mushroom production. Pictures in the manual show disabled trainees and trainers in action at the center and on their own farm.

The enthusiasm expressed by the faces of the disabled farmer's trainees show their feeling of achievement as full and active members of society, both socially and economically, acquired during the training. They are now integrated into society and capable of taking care of themselves and their beloved ones.

I am confident the *Training manual on mushroom cultivation for people with disabilities* will be a useful tool for trainers involved in (in)formal grassroots poverty alleviation programmes aiming at income generation and enterprise development for people with disabilities in rural areas.

R.B. Singh
Assistant Director-General and
Regional Representative for
Asia and the Pacific

**Part I. TRAINING PEOPLE WITH
DISABILITIES**

Introduction

To promote income generation opportunities for people with disabilities living in Thailand, FAO initiated a project with the government's Department of Public Welfare to reach out to the disabled people in rural areas.

The main objective of the project was to enhance opportunities for rural people with disabilities to become self-reliant and to show their capabilities, allowing them to re-integrate their community and be active members of society.

Mushrooms were selected as offering good market opportunities because of their high demand in the Thai diet. The project confirmed that both physically and mentally disabled people are fully capable of cultivating mushrooms and setting up a profitable enterprise. Mushroom cultivation further offers low start-up costs with short-term returns on investment. It further offers food sustainability and promotes self-sufficiency by the sale of mushrooms from the farm and within the community.

Through a carefully developed selection and training methodology, training has been made efficient and replication on a private scale has proven sustainable and even profitable. By using different methods and developing personal ways of accomplishing various tasks, people with disabilities can do everything needed for establishing a successful mushroom enterprise.

The result can be seen in the self-satisfaction and higher self-esteem in many of the trainees. Several trainees married following training. Others have actually become physically stronger. Although incapable of making detailed business plans and keeping detailed accounts, successful project trainees can keep basic records of sales and income, and know how much profit they are making. Trainees with mental disabilities are also capable of basic bookkeeping and developing marketing strategies.

Several trainees have become trainers themselves, whether at the training center or within their family and community. The trainees have developed specific skills and serve as an example for new trainees. Other trainees have been requested by schools to teach adolescents or women's groups about mushroom cultivation. All trainees have already transferred their know-how to family members who not only support them but also have found mushroom to be a major source of household income.

Rendering self-reliance

As trainers, you need to be aware that you have been selected for a very specific task, and that you will play a major role in the future of a number of people. Your responsibility is to enable people with disabilities for a better and happier life by making them self-reliant.

To give disabled rural people the opportunity of becoming self-reliant.

The main objective is to make disabled rural people reach economic self-reliance as entrepreneurs through income generation. You must remember this at all times during the training. All trainees that participate in the extensive training course are there by choice, and because they believe that the training course in mushroom cultivation will give them the necessary tools for a better life. It is your responsibility to make them feel “*FULLY CAPABLE*” of doing anything and everything.



Trainees must believe they “CAN DO”

Mushroom cultivation as a tool for self-reliance

Mushroom cultivation offers several advantages.

1. Mushrooms can be cultivated on a small and large scale to allow personal consumption or the start of a commercial enterprise.
2. Collected mushrooms can be sold as a supplemental or major source of income, depending on the size and number of mushroom houses.
3. People with physical disabilities are fully capable of accomplishing all necessary tasks in mushroom cultivation, even if some modifications in constructions and equipment may be needed. Specific tasks may need to be done differently because of certain disabilities.
4. Chronically ill or weak people can work in a cooler environment since mushrooms grow under the shade. This reduces physical exertion associated with open cultivation as with rice and small fruit.
5. Mushroom cultivation can be performed by mentally disabled people. Several tasks required are repetitive and can easily be learned.
6. For people interested in experimenting, the range in types of mushrooms and cultivation techniques can prove challenging and gratifying.
7. Mushroom cultivation offers a wide range of activities most suitable for people with various needs, diverse interests and specific capabilities.
8. Mushroom cultivation can be started at a very low cost. In the province of Ubon Ratchathani a mushroom house capable of holding 1,000 mushroom bags can be built for as little as 500 Baht (US\$12) depending on the creativity of the constructor and its ability to use readily available and appropriate materials.
9. Mushrooms can be produced and sold within 2 to 4 months.
10. Collected mushrooms can be sold fresh in the village, on the local market or directly from the farm.
11. Spawns or seeds and spawn bags can be bought by the entrepreneur at a reasonably low cost allowing an acceptable profit margin. Thailand spawn is among the least expensive.
12. Spawn bags can be produced for self-use and can also be sold, thus increasing the profit margin and generating more income.
13. Mushrooms can be processed into various types of food, which will give an added value. *(Mushrooms being highly perishable, they must be quickly sold or processed)*
14. Mushrooms can be consumed providing high levels of proteins and vitamins to all family members.

Three-in-one training

Rehabilitation + Mushroom cultivation + Enterprise development

As trainers, you must be prepared to advise trainees in three very distinct and different areas:

1. Rehabilitation of the mind:

- To give them more confidence
- To prepare them for a happier life
- To render them self-reliant
- To get them to believe they CAN DO.

of the spirit:

- They must accept who they are
- They must accept how they are
- They must accept their difference
- They must learn about others

of the body:

- They must learn to do things
- They must learn to do things differently
- They must learn to control their body
- They must learn to accomplish new tasks

2. Mushroom cultivation:

- Nature of Mushrooms and their properties
- Basic knowledge in PDA, tissue culture and spawning
- Producing bags
- Techniques in mushroom cultivation
- Packaging
- Marketing
- Processing
- Waste management and recycling
- Troubleshooting for pest and disease control
- How to build a mushroom house

3. Enterprise development:

- How to set up an enterprise
- How to make this enterprise profitable
- Basic bookkeeping

Obligations and responsibilities

Training and training related duties

- Oversee operation procedures
- Prepare recruitment announcement
- Organize trainees' application
- Arrange trainees' registration data
- Prepare for training
- Visit all pre-selected trainees
- Select disabled people for training
- Organize opening and closing ceremonies
- Set-up an exhibition as a demonstration for opening and closing ceremonies
- Prepare equipment
- Prepare training material
- Study food properties and suitable substrates
- Prepare trainees for training
- Prepare site
- Oversee trainee's regulation
- Arrange for entertainment activities during evenings and weekends.
- Select expert guest speakers
- Send trainees back to their home
- Follow-up and assess trainees who completed training
- Organize meeting to report all details of assessment
- Continuously study to acquire more knowledge to better teach trainees
- Coordinate loans for trainees (guidance on procedures)
- Teach all skills necessary in mushroom cultivation as per THE TRAINING section.
- Set-up sub-groups for training activities
- Arrange for visual and hands-on training
- Show trainees how to accomplish each task
- Give suggestions to trainees on various ways of accomplishing each task
- Show alternate methods of accomplishing each task
- Explain the purpose of each task involved in mushroom cultivation to trainees
- Show various options for processing mushrooms
- Give basic knowledge in marketing
- Give basic knowledge in business management
- Visit successful mushroom farms in the region
- Visit people selling mushrooms
- Test trainees for theory and practice
- Review and adapt teaching approaches when required
- Give advice in case of problems
- Review training and make recommendations for future training

Administrative duties

- Registration and documentation
- Arrange for vehicle to pick-up and send back trainees to and from centre.
- Arrange for accommodation of trainees and trainers
- Arrange for medical care
- Administer budget for training
- Oversee payments
- Keep CLEAR accounting
- Deal with expert guest lecturers
- Cooperate with other mushroom farms to further study and train
- Cooperate with companies and owners of mushroom farms for equipment and materials used in mushroom cultivation
- Cooperate with office of Provincial Public Welfare
- Cooperate with local Ministry of Agriculture
- Cooperate with municipal, sub-district, district and provincial government administration

Maintenance of mushroom farm

- Maintain premises and buildings in good working condition.
- Continue production of mushroom bags to ensure continuous income and readiness for future training
- Continue sales of produced mushrooms
- Promote and give knowledge to outside visitors and interested people.
- Give advice to people visiting the farm interested in mushroom cultivation
- Organize meetings and discussions every 15 days

Financial assistance for trainees

Both technical and financial support will be needed by trainees to help them set up their new enterprise. In many countries, governments have set up special funds to help people with disabilities in enterprise development. These vary in terms of amount and whether they are loans with interest, interest free, or special grants. Information regarding these loans can be found at local municipal or provincial administration offices, or through various ministries responsible for the wellbeing of people with disabilities namely ministry of labor and social welfare, ministry of health, and other ministries, depending on the country. Trainers should get relevant information to assist trainees in preparing all necessary documents needed when applying for financial support. Trainers should also help follow up granting of financial support and monitor payment of loans by giving advice in income management, when needed.

Daily book keeping and financial management

Simple yet accurate accounting must be kept on a daily basis. It is highly advisable that all moneys go through a bank account in order to ensure close monitoring of income and expenses. Specifically in the case of mushroom cultivation, mushrooms are harvested and sold on a daily basis and therefore generate regular income. Trainers may also be in a position to supply raw materials to trainees and therefore raw materials will be sold regularly.

In order to ensure daily monitoring, it is necessary to keep several financial records.

Financial records required

1. Monthly cash flow statement (on a daily basis writing all expenses, income and balance; DATE \ EXPENSES \ INCOME \ BALANCE \ COMMENTS)
2. Inventory book (including all raw materials with purchase prices, date of purchase, supplier's name)
3. Mushroom sales record (for all daily sales of mushrooms)
4. Raw materials sales record (for all raw materials sold to ex-trainees or other buyers)
5. Credit control system (with specific credit notes with accounts receivables giving the precise date of purchase, name of buyer, item purchased, quantity, price and total amount, payment due date).
6. Petty cash voucher system (for quick purchasing of necessary goods)
7. Cash book (following bank in flows and out flows)

Alternate ways of doing things

Answering specific needs

Although people with disabilities are capable of accomplishing all tasks involved in mushroom cultivation, certain adaptations and strategies need to be developed. Two people with the same disability may not have the same abilities and therefore it is necessary to fully understand both disability and capability. Each person is different.

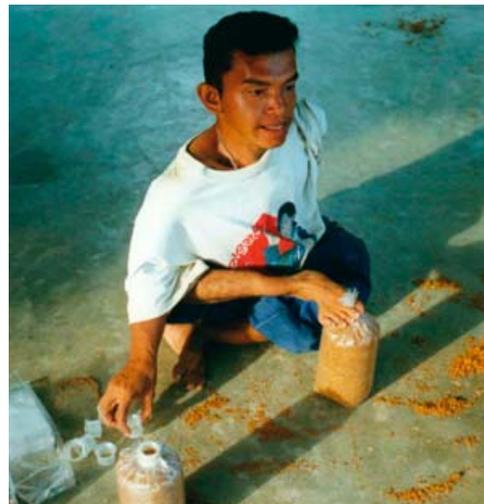
Creative thinking

Trainees themselves will develop their own personal ways of doing things. Nevertheless, trainers need to give direction and options. The best example can be seen in the following pictures, which shows how a person can use the feet to replace the inability of using two hands.

Making substrate bags generally needs the use of two hands. Each step in making bags can be done with the help of feet.



Filling the bag



Holding bag



Placing plastic ring



Tying bag with rubber band

Collaboration and partnerships

Awareness of new training programs and collaboration with other agencies and organizations will help disabled trainees reintegrate society and become fully active members of their community. Furthermore, some agencies can offer know-how in personal development, mushroom cultivation and business development. For example, teaching institutions such as universities and technical colleges may offer courses in agriculture and farm management, which may be useful in the training course. They can be invited as guest lecturers.

The following is a reference list of organizations and institutions that should be contacted and requested for collaboration and eventual partnership.

- ◆ Technical colleges
- ◆ Universities
- ◆ Private companies (using mushrooms or involved in agro-industry)
- ◆ Associations
- ◆ Organizations for people with disabilities
- ◆ Local Non Government Organizations
- ◆ International Non Government Organizations
- ◆ Central Government agencies (Ministry of Agriculture, Ministry of Labor, Ministry of Social Welfare, Ministry of Health, Others...)
- ◆ Local Government administrations (Village level, municipal level, sub-district level, district level, provincial level...)
- ◆ International Agencies (United Nations FAO, ILO, UNDP...)

Opening and closing ceremonies

Implications

The importance of opening and closing ceremonies needs to be highlighted. These ceremonies offer the opportunity to show to those organizations and institutions what programs are involved along with their objectives. It further shows to governments, both local and central, projects involving people with disabilities and especially demonstrates these people's will and capabilities. These ceremonies should further encourage political figures to do more in support of people with disabilities.

Certificates of achievement

As a recognition of the trainees' perseverance and capability of learning about mushroom production, certificates of achievement should be remitted to each trainee. It is a low cost yet high impact incentive, which confirms to all people within the trainees' family and community that they have successfully completed the course in mushroom production.



Operational recommendations

- ◆ Training must take into consideration local activities of disabled trainees. Many disabled people work as laborers and their work is very seasonal. In Asia, rice planting and harvesting are the most important periods of the year where farmers generate their annual income. Training during this period is therefore difficult.
- ◆ Budget administration needs to be well planned in order to avoid misunderstanding during disbursements.
- ◆ There can be major gaps in the learning capabilities of trainees. Members of the training group must be encouraged to help one another. Trainees need to develop a sense of belonging to the group of trainees and trainers. If all trainees help each other, the group will learn more and will be happier.
- ◆ A specific work plan needs to be well prepared in order to foresee the number of bags per day to be made, the inoculation process and others tasks. This work plan will help guarantee purchasing and supply of materials needed for training, and timely delivery without operation stand-stills.
- ◆ Close communication between all concerned officers, trainers and consultants is necessary.
- ◆ All trainers must feel ready to give training in mushroom cultivation, following the extensive training course. It is highly recommended that one trainer be an expert in mushroom cultivation or that close cooperation with an expert be established to ensure troubleshooting for pest and disease control. As trainers, you are not expected to master these problems but to understand basic pest and disease control, management, and you must have access to experts in mushroom cultivation.
- ◆ Information on a variety of mushrooms is necessary so that trainees can choose the most appropriate types of mushrooms to grow on their farm.
- ◆ Trainers must be aware that it is impossible to close the farm during weekends. Farmers must work seven days a week and therefore, trainers may need to arrange a schedule that will allow them to work more than five days a week or arrange a rotation schedule among trainers.
- ◆ Trainees must have access to mushroom houses and have transportation so that they can continue to collect and sell mushrooms on the market during weekends.

- ◆ Mushrooms collected during training also need to be sold and therefore proper transportation will need to be organized along with expenses for the vehicle and driver (gasoline, insurance...).
- ◆ Clear and precise methodology and applications in mushroom cultivation must be followed by all trainers. This is necessary so that the same approach be used and taught to avoid confusion and misunderstanding.
- ◆ All trainers should receive regular supplemental training. One of the most efficient ways of improving cultivation skills is to cultivate, to work hands-on in the various stages of mushroom cultivation at the training center, and to participate in lectures given by guest speakers who are experts in their field.
- ◆ Marketing needs to be addressed as a priority. Without proper marketing, products may not sell easily. Trainees need to develop their own marketing strategies in order to survive in a highly competitive market. When it comes to business, some people will abuse any competitor, whether disabled or non-disabled.
- ◆ Trainees may not show much interest in tissue culture, spawning and inoculation of bags because it is time consuming; many just want to grow mushrooms. Trainees should, nevertheless, have basic knowledge and experience of the whole process involved in mushroom cultivation since some of them will be interested.
- ◆ **Mentally disabled trainees will need special guidance and direction. They can be very clever and make very good mushroom farmers. Their attention to minute details sometimes makes them better in the maintenance of their mushroom farm and therefore, generate yields that are sometimes higher than non-mentally disabled people.**



Monitoring and Evaluation

Following training, it is necessary to evaluate trainees.

Check acquired knowledge.

Verify that trainees can accomplish each task during training. Following training, verify acquired knowledge in mushroom cultivation. If there is some part that is not well understood, which is necessary for starting the business, it must be clarified before sending back trainees to their home.

Check mushroom house at trainees' home

Once trainees have returned home to set-up a mushroom house, trainers must go and visit them to make sure that the mushroom house is ready and properly constructed.

Make sure trainees received their raw material

If the training center supplies raw materials necessary for trainees, it makes it easy to monitor delivery and quality. However, if trainees need to buy their materials from the market, trainers should make sure that trainees are taught how to select the right materials.

Frequency of visits

Trainers must regularly visit trainees at their home at the beginning of their new enterprise; at least once a month. Once trainees are comfortable and sure of themselves, frequency can be set to once every three months, then once every six months.

Monitoring should be conducted [at least once a year](#) to make sure that everything is fine.

Check sustainability

Trainers must verify the income and yield of mushroom farms to verify whether the farm is profitable or not. Trainers should strongly encourage trainees to keep clear records of sales and expenses. If the farm is not profitable, trainers are expected to be capable of identifying the causes and help solve the problems.

Permanent support

Trainers must monitor problems of trainees whether they are technical in mushroom cultivation, or social because of family or community. Close interagency collaboration will help minimize problems and can help solve those encountered. For technical problems, trainers may refer to a specialist in mushroom cultivation from the Ministry of Agriculture or from a University. A resource person close to the trainees' farm would be an advantage.

Encouraging support from family and community

Trainers must encourage family and community members to support trainees in their new enterprise. Trainers can offer to follow-up on financial support requested by trainees, whether it has been received, and give advice on its reimbursement.

Keep notes of all visits and meetings with ex-trainees

Trainers should log all visits to trainees including problems and solutions. This will help continuous and future monitoring and verify if there is any improvement or deterioration in the situation of trainees. These changes can be in mushroom production, in income generation, in their livelihood, their eating habits, in their emotional state. These notes should be placed in a special file accessible to all trainers and management team members.

**BUILDINGS, TOOLS AND
EQUIPMENT**

BUILDINGS, TOOLS AND EQUIPMENT

Adaptation for people with disabilities

In order to train people correctly, it is necessary that a proper mushroom farm be set for training. Large or small, the mushroom farm must offer all the facilities encountered on a commercial farm as to give hands-on experience to trainees. Annex 2 gives a detailed description of all buildings and equipment required for an appropriate training center.

Buildings

There should be one incubation house for three fruiting body houses. This allows rotation of the mushroom bags.

Mushroom houses must take into account ventilation, humidity, temperature and light, while buildings and equipment need to be adapted for use and accessibility by people with disabilities. In order for people with disabilities to perform, it is necessary to create a friendly environment. This means to take into account the various disabilities that can be encountered in disabled trainees, and adapt all buildings, tools and equipment, as required.

Adapted facilities



Paved roads and access ramps to all buildings



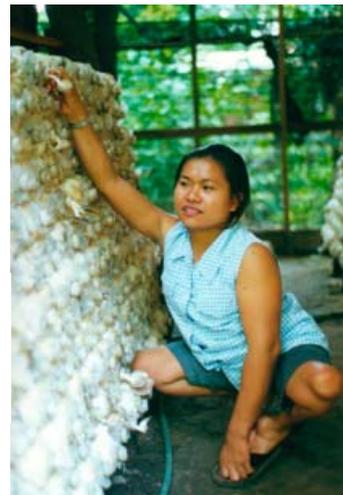
A water trench around the mushroom house limits the entry of ants and other bugs, and allows wheelchairs to enter without difficulty. (This trench must be cleaned at least twice a month).

Doors wide enough for easy access by people in wheelchairs and tricycles.



Aisles inside mushroom houses must also allow movement and work

Height of mushroom racks must allow people sitting in wheelchairs or unable to stand to access to highest level.



The layout diagram of a commercial size mushroom production center can be found in Annex 1 and be used as reference.

Basic designs and materials are different in the case of a commercial farm and for a small private farm. These changes are necessary to lower costs and make mushroom farming accessible to poor farmers. Trainees need to learn how to make simple inexpensive mushroom houses. Grass, rice straw, dried leaves and other readily available materials can be used efficiently.

Pictures of small grass mushroom houses can be found in THE MUSHROOM CULTIVATION: preparing the mushroom house section in the second part of the manual (p.101).

Pasteurization systems

Pasteurization systems also need to be adapted for use by people with disabilities.

Adapted tools



Pasteurization chamber must be built lower than standard, for easy access by people in wheelchair and those unable to stand.

Pasteurization systems can also be made with used drums and appropriate material. This will be especially interesting for those new entrepreneurs who wish to make their own mushroom bags in order to generate higher income. Details can be found in Preparing the Mushroom House section (p.104).

Medium for mushroom bag cultivation

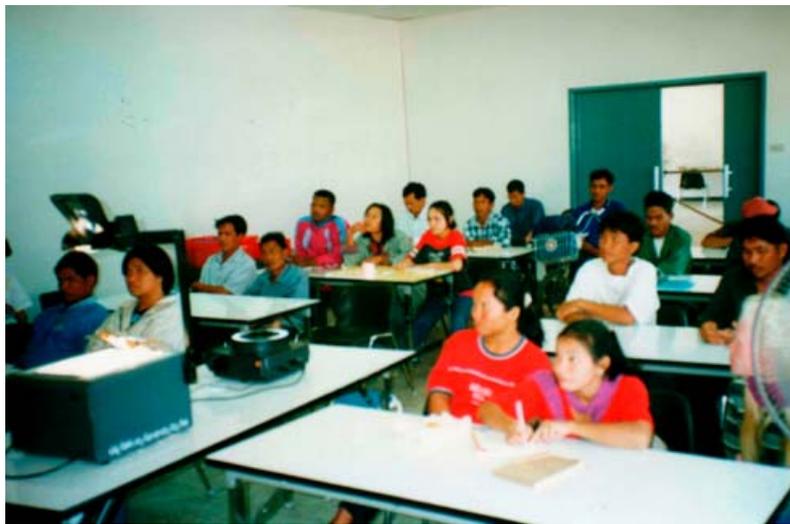
The medium used in mushroom bags varies from one farmer to another. Each one hopes to have the best recipe to make high yield, fast growing, sweet and tender mushrooms. A recipe is proposed in the second part of the manual, Producing substrate bags section (pp. 60 – 61). It can be used for all types of mushrooms cultivated in bags and can be modified through Research and Development.

Ingredients used include:

- Sawdust
- Rice straw
- Rice bran
- Urea
- Calcium sulfate
- Calcium carbonate
- Magnesium sulfate
- Sugar

Other equipment

For appropriate training, teaching equipment such as video and pictures could be most useful, to show how other people with disabilities countered their disabilities. It is most helpful for trainees to see and try different production systems. This will allow them to compare the benefits of each so they can select the one most suitable for their personal needs considering their disability and personal preference.



Tables and chairs for theory, overhead projector, video and television with speakers for visual presentations, white board for supplemental information.

SELECTING TRAINEES

SELECTING TRAINEES

Selection of trainees needs to be conducted under strict criteria and motivation must be carefully assessed. Many people with disabilities are fully capable of accomplishing required tasks however, their motivation needs to be carefully assessed. Therefore, selection remains a key component to ensure sustainability and replicability of the mushroom farm on a private scale. This crucial process can be summarized as follows:

The process

1. *Review of candidates:* Data on people with disabilities vary from country to country. In some cases, the names of people with disabilities are available from local or central government officials. Depending on the country, this could be municipal or provincial authorities, or can be Ministry of Labour and Social Welfare or Ministry of Health. Advertising on radio, television and in newspapers can also help establish a list of people interested in learning about mushroom cultivation and towards becoming entrepreneurs.
2. *Pre-selection:* Age and disability must be verified. Ideally, ages should range between 20 to 35, although some exceptions made in the past for younger and older candidates have proven justified and rewarding through their dedication and success. Multiple disabled people may have difficulties following a course because of limited mobility, understanding and replicating potential. Candidates with basic literacy will find the training course more enjoyable, theory classes more useful, easier to understand and are generally more likely to succeed as entrepreneurs.
3. *Diversity of location:* Following a preliminary selection, a diversity of locations should be favored. This will encourage future replication by trainees themselves who will have the opportunity to train their community members. It will also help avoid market saturation
4. *Each candidate interviewed at home:* Trainers must visit all short-listed candidates at their home. Trainers must verify that candidates have family support, community support and access to land for the set-up of a mushroom house following training. Trainees must be capable of taking care of themselves during training.
5. *Verification of commitment:* Trainers must further verify the commitment of both family and potential trainees as to their will and readiness to set-up a mushroom house following training.
6. *Verification of motivation:* Trainers need to ensure that candidates are highly motivated for learning about mushroom cultivation. This can be verified by the fact that potential trainees personally like to eat and enjoy to cook mushrooms that they know about mushrooms from their parents and grand parents and they wish to learn more.
7. *Verification of availability:* Trainers must make sure that the candidate is able, committed and ready to leave home and learn about mushroom cultivation for the duration of training. In case of multiple disabled persons, a family member should accompany them.
8. *Final selection:* Trainers must sit together and discuss their visits by reviewing each candidate and deciding whether or not a candidate should be selected, and give the reasons why. Final selection can be made after reviewing all potential trainees.

Size of group

The number of trainees will depend on the number of trainers involved. A ratio of 5/1 or 6/1 has proven successful. With only five to six trainees per trainer, it is possible for a trainer to become closer to trainees and to better understand their physical, psychological and emotional needs during training. The trainer must always keep in mind that this training program is not only about training in mushroom cultivation but also in rehabilitation towards re-integration into society as active and self-reliant participants.

Gender equality

Mushroom cultivation can be done without major physical strength thus offering a good opportunity for women who wish to have supplemental income or who wish to develop a new business that will allow them to remain at home with the family. It further allows both women and men with physical and motor disabilities to work from their home rather than travel a distance every day. Care must be taken for women attending the training, that they have separate facilities and good security at night. During training, women can train along with men, and must be allowed the opportunity to express their ideas. Past experience showed that women learn well about mushroom cultivation and in proportion, show higher rate of success in their mushroom enterprise following training.

Problems to be avoided

The following problems are often encountered during training programs and can be avoided or reduced by following recommended selection criteria. Although each problem can have several solutions, suggestions are made as to solve these encountered problems.

Note: Although strict criteria are followed, some trainees are likely to return home before the end of training. Selection criteria are there to increase chances of sustainability but cannot control unexpected events that may occur in the private lives of trainees. A preliminary selection questionnaire can be found in Annex 3.

Problems	Selection criteria
1. <i>Trainees quit or run-away because they feel home sick.</i>	Trainees should have left home in the past for rehabilitation, training or work, and their experience should show that they have responded positively.
2. <i>Trainees never left their family.</i>	Training closer to home rather than centralized in one far-away location will encourage a greater number of trainees to participate and to stay for the whole duration of training.
3. <i>Trainees never received rehabilitation and therefore may not be able to take care of themselves.</i>	Trainees should have already received rehabilitation. People with multiple disabilities usually need special attention and care; this must always be considered in any training program in terms of facilities and budget. If budget allows, a family member could accompany the multiple disabled person for training.
4. <i>Some trainees are not used to doing anything – they have always been over-protected by their family. They may not wish to learn anything or any trade.</i>	Trainees should have the firm intention of setting-up an enterprise in mushroom production following training and therefore must attend the training program voluntarily, not because of family or outside pressure. They must have access to land.
5. <i>Many people over 60 years old never had the opportunity to receive any training and rehabilitation, and now see the opportunity for doing something. They may not be capable of learning easily and will find it difficult to start a new business following training.</i>	Age selection should be between 18 and 40 years old. Ideally, they should range between 25 and 35 years of age in order to create a more homogenous group. Special care must be taken that all women are not very young compared to older men. The reverse situation would not necessarily have the same detrimental impact.
6. <i>Some candidates are multiple disabled (more than one physical disability or both physically and mentally disabled); some may be incapable of learning. Teaching a family member may help support multiple disabled.</i>	People that are mentally disabled may need special supervision although they can perform several simple and repetitive tasks. Other members of the group must know about the mental capability of their peers and therefore can assist by giving supplemental advice.
7. <i>Security needs to be assured for women attending training.</i>	For women with disabilities attending training, appropriate facilities are necessary to sure security and privacy.

Formal Procedures

Application information

1. Preparation of application form as to show background, experience and capabilities of the disabled person as per Annex 3.
2. Announcement through media (television, radio, posters, etc) and by giving disabled people application forms.
3. Request for help to local officials in the selection of trainees, and encourage them to send interested people to apply for training.
4. Rehabilitation centers and Public Welfare offices should advise disabled people and encourage them to apply for training.
5. Applicants should have a letter of recommendation from one of the officials from the village or community as to confirm the trainees' interest and commitment to train and work, following training, and to involve local officials in the project.

Final selection procedure

1. Committee pre-selects from applications.
2. Committee interviews pre-selected people at their home in order to verify the candidates' genuine interest and family/community support.
3. Committee sends a letter to confirm and invite selected disabled people on the dates, venue and schedule of training.
4. In order to facilitate selection, and for convenience in the follow-up and support, it may be helpful if few disabled people come from the same district. People can then help each other so that after training, upon return to their home, they may eventually work together.

MOTIVATIONAL SESSIONS

MOTIVATIONAL SESSIONS

Objectives

Motivational sessions allow trainees to meet one another and to prepare for their “community life” during training. It is a moment of relaxation, reflection and contemplation.



The main objectives of these sessions can be summarized as follows:

Trainees,

- Learn more about themselves
- Learn about others and their disabilities
- Learn to accept what they are and how they are
- Learn about positive thinking
- Have to be convinced that they “CAN DO” what they want if they set their mind to it.
- Learn about food and dining habits
- Learn to pray, to meditate, and to exercise their body and mind through songs, plays and creative games
- Learn to love
- Learn to resolve problems

Trainees must set their own limits and not let other people determine what they can and cannot do.

These sessions should make trainees feel like they are part of a large family.

The following pages propose an outline, which has been successful with groups of trainees. It should serve as a reference and be adapted according to local customs and traditions.

Proposed outline

First series of motivational sessions

WEEK No.	DAYS No.	TOPIC / TRAINING DETAILS	PERIOD
1	2-4	Motivational sessions. Development for a better quality of life (by special trainers)	
	1	On the first day	
		-Welcome to the “New Family”	Morning
		-Learn about table manners	Morning
		-Learn about yourself	Morning
		-Talk, Play game and sing songs	Afternoon
		-How about “Love”	Afternoon
		-Divide group to learn about love and anger	Afternoon
		-Arrange a show with the group	Evening
		-Play the drama of life (emphasize to learn more about yourself)	Evening
		-Pray – Meditate – Reflect on – Contemplate –	
	2	On the second day	
		-Learn to concentrate and maintain concentration	Morning
		-Exercise body	Morning
		-Learn to love your family and peers	Morning
		-Play games and music	Morning
		-Learn to accept others as they are	Morning
		-Learn to accept things and events that you cannot change	Morning
		-Build strength and courage to change what you can change	Morning
		-Learn to know the difference between what you can and cannot change	Morning
		-Play games and music	Afternoon
		-Divide into sub-groups and discuss family relations, problems and solutions.	Afternoon
		-Prepare a show	Evening
		-Play the drama of life “the family”	Evening
		-Pray – Meditate – Reflect on – Contemplate	Evening
	3	On the third day	
		-Pray – Meditate – Reflect on – Contemplate –	Morning
		-Exercise body	Morning
		-The importance of work in life. Relationships with family and society and relevance to work.	Morning
		-Play games and music	Morning
		-Farewell celebration “Till we meet again”	Morning

Second series of motivational sessions

5	2-3	Motivational sessions. Development for a better quality of life (by special trainers)	
		On the first day	
	1	Give gratefulness and respect to teachers and elders	Morning
		Cherish the moment	Morning
		Open your mind to be able to solve individual problems	Morning
		Sort problems, understand them in order to solve them together with your peers	Afternoon
		Offer ways and solutions to solve problems to your peers	Afternoon
		Camp fire evening while learning about people and life	Evening
	2	On the second day	
		-The group's mission: to continue to help and support each other, their family and friends. To maintain self-control, self discipline. To always be active, patient, respectful of others. To always try to help those who need help.	Morning
		-Farewell activity	Morning

THE TRAINING

THE TRAINING

Learning about mushrooms

Trainers need to have solid knowledge on mushroom cultivation in order to train others. Trainers must be capable of teaching about mushrooms, their health properties and benefits, their cultivation, processing and how to run a mushroom production farm. More specifically, trainers need to learn about the various tasks involved in the whole process of mushroom cultivation, the various types of cultivation according to the various types of mushrooms, and the processing and transformation of cultivated mushrooms.

Several specialists, teachers and speakers can participate in the training, thus offering a wider approach and maintaining more interest for trainees.

Training is divided into two parts: a theoretical understanding and practical “hands-on” experience.

A detailed description of the various tasks involved in mushroom cultivation can be found in the second part of this manual. Each of these tasks requires certain abilities and therefore can be difficult or impossible to perform in a conventional way by some people with certain disabilities. Alternative approaches for accomplishing certain tasks need to be developed by trainers to help trainees develop their own strategic ways of accomplishing all tasks required in mushroom cultivation. Trainees that have become trainers are in the best position to teach other trainees about different ways of accomplishing required tasks.



From Theory to practice

The following section is an intensive review of what you, as a TRAINER, should know about mushroom cultivation. It is highly recommended that if you have no experience in mushroom cultivation, you should identify an expert that will give you intensive training and continuous technical support.

From theory

To practice

<u>Theory</u>	<u>Practice</u>
<ul style="list-style-type: none"> • Nature of Mushrooms • Mushroom cultivation as a business • Mushrooms around the country • Mushroom tissue culture • Mushroom spawn production 	<ul style="list-style-type: none"> • Tissue culture • PDA • Spawn production • Sorghum seed production • Mushrooms in the wild and on markets
<ul style="list-style-type: none"> • Substrate bag production • Incubation • Harvesting • Paddy straw mushroom production and harvesting • Mushroom marketing 	<ul style="list-style-type: none"> • Substrate bags production • Management of incubation and fruiting body • Mushroom bed production and harvesting and marketing • Processing techniques and recipes
<ul style="list-style-type: none"> • Equipment, tools and mushroom marketing • Waste management and mushroom cycle business • Mushroom farm management • Mushroom processing • Mushroom farmers collaboration • Pest and diseases 	<ul style="list-style-type: none"> • Visit to mushroom processing • Visit to canning site • Mushroom processing (Hed sawan or mushroom sweets) • Mushroom drying • Packaging • Pest and disease management

Trainers must fully understand physical and mental requirements to perform certain tasks before selecting trainees. Generalizations are not always possible because of individual differences and capabilities. Experience will be the best reference.

Continuous need for training

Regular training is necessary for trainers to fully understand all tasks involved in mushroom cultivation as to ensure that people with disabilities will be capable of accomplishing the required tasks and that they will not be subjected to needless failure and frustrations.

Overall, capacities to be evaluated in trainees can be summarized as follows:

- Capable of using hands (or use of artificial limb)
- Capable of moving freely (with legs or wheel chair / tricycle)
- Capable of seeing
- Capable of hearing
- Capable of speaking
- Capable of basic understanding
- Capable of decision making

In the case where one or several of these abilities are incapacitated or reduced in some way, alternate ways of accomplishing required tasks will need to be developed by trainers. Trainers will support and give direction to new ways of accomplishing tasks in order for trainees to become fully capable of becoming successful mushroom cultivation entrepreneurs.

Training approach

Training is conducted as a hands-on experience with some basic theory for better understanding on the meaning of the activity. You, as trainers, must closely monitor procedures and actions as to show trainees how to develop easiness in accomplishing all required tasks.

Not all trainees will be capable of fully understanding each step involved in mushroom cultivation. Many will not even wish to get involved in the more complex tasks such as spawning, inoculation and even making their own bags. For most trainees, their objective is to cultivate mushrooms, and to sell these harvested mushrooms on the fresh market in order to generate income. This means, they want to buy inoculated bags ready for fruiting. These bags can often be bought locally from nearby mushroom farms, or can be supplied by the training center, thus generating income for the center. Nevertheless, some trainees will want to make their own bags and even sell already inoculated substrate bags to increase their income. This, associated with the cultivation itself, can generate an interesting profit when managed properly.

Trainees are expected to return home and set-up a mushroom farm following training. Close monitoring will then be needed to support trainees in their new venture.

Start-up procedure

Although official training starts on the day of the opening ceremony, formalities are necessary prior to this beginning.

1. Registration of trainees and organization for accommodation
2. Meetings and discussions with trainees to review regulations at center and guidelines for training
3. Preparation of opening ceremony.
4. Opening ceremony should include municipal and provincial officials from Public Welfare, Ministry of Agriculture, Ministry of Labour and Social Welfare... as to make sure that people know of the project and continue to encourage disabled people to pursue enterprise development.
5. On the second day, trainees will be divided into four sub-groups (each sub group should have about 4-6 persons)
6. In order to facilitate hands-on experience necessary in mushroom cultivation, training is to be separated into 4 main sectors of activities, as follows:
 1. Preparation of sawdust bags (sieving, mixing, bagging, transfer materials for inoculation); waste management for each step (composting, recycling), cultivation.
 2. Pasteurization and inoculation, (including materials, cleaning, recording, labeling)
 3. Incubation and fruiting body (carry bags from incubation to fruiting body, diseases management, watering, ventilation)
 4. Harvesting, packaging, processing, marketing.

Invited guest speakers are always most welcomed by both trainers and trainees. Aside from reducing the monotony of always dealing with the same trainers, guest speakers are able to share their own experience as specialists or entrepreneurs in mushroom production. Preferred speakers are successful entrepreneurs who have surmounted the problems of disease, pest and who have a good understanding of the market. Furthermore, because of individual differences and preferences, each successful mushroom production entrepreneur introduces its own personal way of producing mushrooms. By inviting several speakers, trainers learn that there is not one but various methods of cultivating mushrooms successfully.



A disabled successful entrepreneur in mushroom cultivation talks about his personal experience to interested trainees

The following schedule is based on a nine weeks training program. There should be flexibility in the number of days allocated for different learning activities since each group, each individual, will learn differently according to intellectual and physical capabilities.

Proposed schedule

Week	Days	Activity	Description	Trainer
1	1	Welcoming new trainees. Meeting between trainers and trainees.	Registration of trainees and organization for accommodation. Meetings and discussions with trainees to review regulations at center and guidelines for training. Preparation of opening ceremony.	Trainers
	2-3	Motivational sessions.	Invited guest speakers and trainers discuss the difficulties of life and how to surmount them.	Guest speakers
	3-4	Group 1 (1)*, 2 (2), 3 (3), 4 (4)	Hands-on practice: Divide trainees into sub-groups. Basic explanations of the task followed by hands on experience and repetition of tasks, under the close supervision of one or few trainers. Those trainees that already have some knowledge are encouraged to help other trainees.	Trainers
2	1	Opening Ceremony.	Official opening with all trainees, trainers, municipal and provincial officials.	All
	1 day	Overview on mushrooms.	The mushroom world. How it is in nature, humidity needed ventilation, light, diseases and insects. How they can see mushrooms in their natural environment. What are the nutrients, medicinal properties, poisonous and non-poisonous species, recipes and other uses for mushrooms.	Guest speaker
2	4-5	Group 1 (1), 2 (2), 3 (3), 4 (4)	Hands-on practice. (Second week)	Trainers
3	1-2	Mushroom lovers.	How to estimate the sufficient amount manageable by the person. The amount is different for each person and is to be determined by the person itself. Close observation is crucial for successful cultivation.	Guest speaker
3	1 day	General Microbiology & Mushroom culture.	How microbes grow in nature. How are they cultivated scientifically in an aseptic way. How this can be used to grow spawn on jelly, moss and rice.	Guest speaker
3	4-5 days	Group 1 (2), 2 (3), 3 (4), 4 (1)	Hands-on practice. (Rotation of groups.)	Trainers
4	1	Mushroom cultivation in plastic bags. Management in mushroom house.	Technique in cultivation methods and tactics in management. Control of temperature, humidity, and ventilation.	Guest speaker

4	4-5	Group 1 (2), 2 (3), 3 (4), 4 (1)	Hands-on practice. (Second week).	
4	1	Diseases and pests.	How to identify and control. Chemical and alternative natural methods to protect mushroom production.	Guest speaker
5	2-3	Motivational sessions.	Personal development towards a better quality of life.	Guest speakers
5	4-5	Group 1 (3), 2 (4), 3 (1), 4 (2)	Hands-on practice. (Rotation of group).	Trainer
6	1 day	Mushroom spawn (in agar and seed).	How to develop spawn, and to select the one that is clean and healthy. How to identify various types of spawns.	Guest speaker
6	1 day	Packaging & Marketing.	Strategies for packaging and marketing in remote communities.	Guest speaker
6	4-5	Group 1 (3), 2 (4), 3 (1), 4 (2)	Hands-on practice. (Second week).	Trainers
7	1	Mushroom cultivation in logs & Straw mushrooms cultivation.	Other types of mushrooms can be cultivated on logs and with rice straw. These use different cultivation techniques.	Guest speaker
7	1	Waste Management.	How to convert mushroom cultivation waste into organic fertilizer. Reuse and recycling.	Guest speaker
7	4-5	Group 1 (4), 2 (1), 3 (2), 4 (3)	Hands-on practice. (Rotation of group).	Trainers
7	1	Processing.	Transformation of mushrooms into “hed sawan” a type of sweet snack, and other types of snacks and foods.	Guest speaker
8	1-2	Enterprise development.	Running a feasible small-scale business in mushroom production.	Guest speaker
8	4-5	Group 1 (4), 2 (1), 3 (2), 4 (3)	Hands-on practice. (Second week).	Trainers
9	5	Field trips.	Visits of Small and medium size mushroom farms in the region.	Trainers
9	2	Evaluation of training.	To verify how well each trainee has learned all necessary tasks towards successful mushroom enterprise.	Trainers
9	1	Closing ceremony.	Remittance of achievement certificates to trainees.	All

*Remark: The number in bracket defines certain activities

- (1) = Preparation of sawdust bags (sieving, mixing, packaging, transfer, materials for inoculation), also waste management. (composting recycling), cultivation.
- (2) = Pasteurization and inoculation, (including, materials, cleaning, recording, labeling).
- (3) = Incubation and fruiting body (carry bags from incubation to fruiting body, check diseases, watering).
- (4) = Harvesting, packaging, processing, marketing.