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Review

Importance of assistive technologies and programmes for economic empowerment of disabled farmers– a review

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ABSTRACT

Farmer is a person engaged in works combining of raising field crops, plantation, vineyards or livestock. As per Registrar General of India and Census Report 2011 the total population of farmers or cultivators is 118.7 million and of agricultural workers/labourers is 144.3 million which consists of 31.55 per cent of the total rural population. Farming is one such occupation where a lot of occupational hazards are involved. Several physical, physiological and mental disabilities are caused unknowingly due to the activities involved in farming. There are about 26810557 disabled people as per 2011 Census in India but it is important to note that the data related to disabled farming community are not available. Most of the disabled people are part of rural areas and are generally ignored. Opportunities for participation in education, occupational, social and community activities are not encouraged for the disabled. Due to this their economic status, mainly their economic status is not good. Disabled farmers are one such group which has to be considered and provided with some assistive technologies and programmes in order to help them carry on their occupations similar to the normal people, earn money and become economically empowered.

Keywords: Farmer; disabled; assistive technology; economic empowerment

INTRODUCTION

Disabled population is ignored and ill-treated in the society. Disability is an umbrella term covering impairments, activity limitations and participation restrictions. Disability is a state of person who is dependent on other human beings or mechanical devices due to the partial or complete impairment of any organs or senses which leads to loss or reduction of functional ability in walking, seeing, hearing, moving, lifting, bending, pushing, pulling etc. World Health Organization (WHO) describes that disability is not just a health problem. It is a complex phenomenon reflecting the interaction between features of a person's body and features of the society in which he or she lives. Overcoming the difficulties faced by people with disabilities requires interventions to remove environmental and social barriers.

A disabled person is a human being who is impaired because of diseases, congenital condition or traumatic experience which cause unusual and excessive dependency on other human beings and/or mechanical devices either partially or fully to carry out their day to day activities. Poor economic status and disability are inter-related situations. Proper care and empowerment has to be given to disabled people in order to make their living easy and happy.

Empowerment is one of the important factors for any human being to live prosperously. The World Bank has identified empowerment as one of the key constituent elements of poverty reduction and a primary development assistance goal (Malhotra et al 2002). Three major parameters that play an important role in empowering people are education, health and economy. Empowerment is defined as

the capacity of individuals, groups and/or communities to take control of their circumstances, exercise power and achieve their own goals and the process by which individually and collectively they are able to help themselves and others to maximize the quality of their lives (Adams 2008).

There are different forms of empowerment like social, political, economic empowerment and the most important form required to lead one's life without any pressures is economic empowerment. Economic empowerment is the capacity of individuals to participate in, contribute to and benefit from growth processes in ways that recognize the value of their contributions, respect their dignity and make it possible to negotiate a fairer distribution of the benefits of growth (http://www.oecd.org/dac/gender-development/womenseconomicempowerment.htm). Economic empowerment increases access to economic resources and opportunities like jobs, financial services, property and other productive assets, skills development and market information.

Bennett (2002) has developed a framework which shows that empowerment and social inclusion are closely related to each other and described empowerment as the enhancement of assets and capabilities of diverse individuals and groups to engage, influence and hold accountable the institutions which affect them. Whereas social inclusion is defined as the removal of institutional barriers and the enhancement of incentives to increase the access of diverse individuals and groups to assets and development opportunities. Considering inclusion as an important target it has recently been highlighted in major strategic development frameworks including the Millennium Development Goals Post 2015 development agenda as well as the Convention on the Rights of People with Disabilities (CRPD). India is a country in which majority of the people mainly in the rural areas are dependent on agriculture/farming. Farmer is a person engaged in works combining of raising field crops, plantation, vineyards or livestock. As per Registrar General of India and Census Report 2011 the total farmers' or cultivators' population is 118.7 million and 144.3 million agricultural workers/labourers which consist of 31.55 per cent of total rural population.

Farming is one such occupation where a lot of occupational hazards are involved. Several physical, physiological and mental disabilities are caused unknowingly due to activities involved in farming. There are about 26810557 disabled people as per 2011 Census in India but it is important to note that the data related to disabled farming community is not available. Most of the disabled people are part of rural areas and are generally ignored. Opportunities for participation in education, occupational, social and community activities are not encouraged for the disabled. Due to this their status mainly their economic status is not good.

Disabled farmers are one such population which has to be considered and provided with some assistive technologies in order to help them carry on their occupation similar to the normal people, earn money and become economically empowered. Assistive devices and technologies are those whose primary purpose is to maintain or improve an individual's functioning and independence to facilitate participation and to enhance overall well-being. As per WHO they can also help prevent impairments and secondary health conditions. The use of assistive technology can simplify tasks that need to be completed, create efficiency in labour-intensive work processes and reduce fatigue (Anuradha and Reddy 2013).

Under the present review the different assistive technologies available to the disabled farmers have been discussed and the importance of assistive technologies for the economic empowerment of disabled famers has been analyzed.

Government of India has introduced few welfare programmes/schemes for persons with disabilities mainly for the economic empowerment. Some of them include:

Assistance to disabled persons for purchase/ fitting of aids and appliances (ADIP): Under the scheme aids/appliances are distributed to the needy persons with disabilities.

National institutions: Selected national institutions provide rehabilitation services and undertake manpower development with the overall objective of providing rehabilitation services for different types of disabilities.

The National Handicapped Finance and Development Corporation: It provides concessional credit to persons with disabilities for setting up income generating activities for self-employment.

How far the schemes are beneficial and accessible to the disabled farmers is still a question. People with disabilities in rural areas are largely excluded from mainstream poverty alleviation programmes due to attitudinal and physical barriers (Anuradha and Reddy 2013). Many disabled people are held back from farming independently because of a lack of self-belief and the absence of encouragement from others (Anon 2011).

Disability also affects the farm business. A study results reported that disability had a negative impact on the farm business in majority of the cases interviewed. Family farm income was lower by 15 per cent on farms where the farm operator reported adisability. Off-farm employment was considerably lower among both farm operators and spouses when the farm operator reported a disability as the spouse spends working time attending to the needs of the person with a disability (McNamara 2004). Disabled farmers have inadequate access to means of production such as land, water, inputs, seeds, appropriate technologies and farm credit (http://www.un.org/esa/socdev/enable/rights/uncontrib-fao.htm).

To overcome such obstacles assistive technologies (AT) are a solution to disabled farmers. There are several assistive technologies coming up in the market which are helping the disabled farmers to carry out the field work similar to a normal person. ATs act like a bridge that can help those farmers who have disabilities or primary injuries to continue to be productive while reducing opportunities for secondary injuries (Anuradha and Reddy 2013). ATs can be grouped into two categories: some are common to all operations whereas others are specific to the type of operation. For example a tractor designed to meet the special needs of a disabled operator will fall in the first category and a remotely operated gate for guiding animals will fall in the second category as it is used specifically for animal production.

Some examples of assistive technologies that are of great use for farmers with disabilities include aids to daily living (grab bars, objects with extended handles, anti-vibration gloves, shoes with shock-absorbing soles, remote controls etc), environmental controls (programmable thermostats for heating/cooling, pre-programmed lighting and irrigation systems, motion or pressure sensitive controls for opening doors, automated humidity and ventilation systems etc), home or worksite modifications (accessible entrances and pathways in the field, slip-resistant working surfaces etc), vision and hearing aids (sensory aids to help people who are blind, low vision, deaf or hard of hearing etc), personal mobility aids (devices such as canes, wheelchairs, walkers, mobility scooters etc), work accommodations (ergonomic work stations, pneumatic or battery-operated tools and equipment, ergonomic hand controls, hydraulic or electric-hoisting equipment, livestock-handling equipment, automated-feed equipment, anti-fatigue matting etc), seating and positioning aids (air ride tractor seats, swivel seating, transfer devices to assist in transferring from wheelchair to seat, garden assistance carts with seat, anti-vibration padding etc), vehicle or equipment modification (additional or modified steps for farm vehicles and equipment, motorized lifts, hand or foot controls, hydraulic or electronic controls, hitching assist devices etc), prosthetics and orthotics (electric hand, prosthetic leg, back brace, knee brace, foot pads, shoe inserts etc) and tractor alterations (incorporating tractors with additional steps and handholds for individuals with difficulty in balancing, a weak lower body, and/or arthritis.

Tractors are incorporated with hand-operated clutches to help amputees or restricted use of their legs, a simple spinner knob on a steering wheel for better steering control for individuals with low grip strength or prosthetic devices. Custom-made seats with proper lumbar support, seat angle, footrests and knee and ankle positioning have also been in use to assist individuals with spinal cord injuries (Anuradha and Reddy 2013).

Though there are different assistive technologies which are mentioned in the literature the question to answer is that in India how many disabled farmers are really accessible to these assistive technologies. To support this statement the results of an exploratory study indicated that farmers had a lack of awareness regarding assistive technology but reported utilizing personal protective equipment. The awareness about assistive technology depends on age, educational level and years of farming experience (Behrens 2014).

There are several benefits of ATs to disabled farmers. They range from basic, low-tech options assembled from inexpensive sustainable to expensive,

sophisticated, high-tech technology materials. ATs awareness and implementation makes the disabled farmers to overcome physical difficulties and barriers through use of appropriate workplace accommodations and supports (Driscoll et al 2001). They also drastically improve the functional abilities of individuals living with cognitive, visual or auditory limitations by providing the support that facilitates successful engagement in meaningful occupations.

With regard to farming ATs can prevent or decrease the severity and incidence of injury while also equalizing opportunities to continue farming for the disabled (Friesen et al 2010). Even after farmers experience injuries or permanent disabilities they can make necessary adjustments to their work in order to return to their primary occupation of farming through ATs (Friesen et al 2010, Mathew et al 2011). Disabled farmers also try to make modifications to their farm equipment or fabricate a self-designed device in order to overcome their disability-related restrictions (Mathew et al 2011). But these self-designed ATs may directly or indirectly increase the risk of secondary conditions or injuries due to the lack of proper fabrication of the technologies (Mathew et al 2011). Hence disabled farmers need to be given proper education and supply of the assistive technologies.

When disability attacks a farmer's family situations change except the desire to continue farming but there is a participation restriction for the disabled farmers such as an inability to fully engage in major age appropriate social and economic activities. Due to these restrictions income is lost due to lower productivity and the impairment itself or may be due to the cost of assistive aids and equipment and personal supports. This is decreasing their income earning capacity and stopping them from becoming empowered mainly in the economic matters (http://abhakhetarpal.in/blog/disability-management-in-agriculture-an-all-inclusive-revolution).

Majority of the disabled are not chosen for labour-intensive agricultural occupations (Gartrell 2010). They are also deprived from education, skill training and treatment facilities and this makes them lack the physical ability to work and limits their human capital (Eide et al 2011). They also lack social capital due to non-involvement in community savings groups or networks and hence face barriers for becoming economically empowered (Coleridge 2005).

Hence farmers who are disabled have to be provided with appropriate medical care and rehabilitation services. This includes access to assistive technologies that will help them regain the highest level of independence possible, earn money and become economically empowered (Field and Jette 2007). Apart from assistive technologies skill development, self-employment, wage employment and financial and social protection schemes are to be given as an intervention in order to empower the disabled farmers (Coleridge 2007).

In India agriculture is mostly an unorganized sector and is not well covered by insurance or health services or social security of any kind. Disability management is one technique which can help the disabled farmers to become empowered. This is a process of looking for how to reduce the impact of disability completely.

Disability management is implemented in three phases. The first phase ie micro-level phase includes management in which a person with disability needs services for his personal well-being and empowerment. The second phase ie meso-level has workplace management programmes. It is the level where the major activities take place and the disabled farmers need to be vocationally trained. This is the area where human resource management has to play its role. The third level ie macro-level is the level of social system, services and mediating institutions.

Government policies are needed to support disability management programmes and to let them work well. Here it becomes a national and economic issue. A collective effort of local NGOs, government agencies, agricultural engineers, assistive technology and counsellors can help the disabled farmers to carry on their work on their own. On the whole to overcome the costs of disability, proper management, assistive technologies and policy measures have to be employed.

Micro-financing also has to be made available not only for farming activities of a farmer with disability but micro-financing of his health should be done for his return to work after disability. Funding is also required for training for income generation activities. Farmers can obtain vital information on alternative economic options such as diversifying the farming operation, starting home business or seeking off-farm employment. Access

to vital services such as debt mediation or legal services results in ability to mitigate stress through different organizations (http://abhakhetarpal.in/blog/disability-management-in-agriculture-an-all-inclusive-revolution).

While technology can make things easier for everyone assistive technology can make farming possible for individuals with disabilities. A social model of disability which focuses upon equal access, social opportunities, health, education, employment, political, economic and social development and elimination of legal and social barriers has to be promoted for the disabled farmers in order to make them empowered economically (McClain-Nhlapo 2010).

CONCLUSION

Literature on farmers' awareness of proper body mechanics and assistive technology is limited. There must be a check for availability and accessibility of these assistive technologies to the disabled farmers. Majority of the disabled people face great challenges and obstacles in earning a good economical status. Mainly in a country like India when disabled farmers are born in poor families living in rural areas they are generally perceived as second-class citizens frequently suffering disregard, abusive language and even violence. They become a substance of prejudices.

There are several reasons like lack of education, discrimination on the grounds of disability in the job market, numerous infrastructural barriers etc which create the prejudices and this can limit the disabled farmers' access to assistive technologies. All these factors combine and hinder their growth and development and capacity to make an independent living. Though the disabled farmers have ideas, skills and talents like any other normal person they are unable to earn money and become economically empowered. But if the disabled farmers are supported and nurtured in a right way with the help of assistive technologies and programmes there is a huge chance for them to gain an upper hand over the obstacles faced, earn money and become economically empowered. In a long run this can help the disabled farmers and their families to overcome poverty and hunger with sustainable living and enhanced food security.

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