

Vocational skills training as a requirement for survival in disaster affected communities: an educational, managerial and technological perspective

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ABSTRACT: For many years, throughout the world, people have had, and continue to have, pressing, endless and urgent needs to build conducive and human friendly communities. However, in a disaster situation, many lose lives, property, infrastructure, close friends and family members, something which causes multiple pain and suffering. Such a condition calls for a tested strategy and or approach, which can heal all the post-disaster wounds and pains brought about by deadly calamities (such as tsunamis, volcanic eruptions and earthquakes). In this case, among the most appropriate strategies is vocational skills training. Based on this, in the present study the authors seek to examine the effectiveness of this strategy from an educational, managerial and technological perspective with the aim of establishing how the strategy should work to build sustainable communities in a post-disaster situation. It is concluded that communities need to possess appropriate knowledge, attitude, and skills necessarily for their survival after minor and severe disasters. This can take place in the form of vocational training and skills development.

INTRODUCTION

The world today is full of problems and challenges to the extent that they can be smelt in the air; they are tasted in water; they are seen in more congested living spaces and blemished landscapes; people read about them in newspapers and hear about them on radio and television [1]. In most disaster prone areas, most of the information is about disaster challenges, common occurrences, disaster insurance, disaster prevention measures, disaster warnings, disaster management and health challenges. Or they may be about many other matters suggesting increasing levels of susceptibility to facing difficulties during disasters and after disasters, which may be manmade, such as wars, violence, fire outbreaks, and also natural calamities like tsunami, earthquakes, volcano eruption and wild fires [1].

Today many countries, mostly developing countries, are prone to disasters both natural and manmade, which of course lead to loss of lives, community destruction and general human suffering. This has caused increased humanitarian needs, which are growing at an extraordinary pace - a historical pace - and are outstripping the resources that are required to respond [2].

Indonesia being the largest island nation in the world, with its 17,000 islands and over 80,000 kilometres of coast, is vulnerable to sea-level rise and myriad natural disasters [3]. Floods are the most the common hazard, but the unpredictability and wide-spread devastation caused by earthquakes, tsunamis and volcanic eruptions make geological disasters much more threatening. The World Bank has estimated that 40 per cent of the country's population or around 90 million people, are vulnerable to disasters.

Studies have revealed that conflict and disasters pose significant difficulties to achieving education for all [4-6]. A significant proportion of school children and adolescents live in conflict-affected countries and this number is increasing [4]. They are also a huge obstacle to achieving good management during and after disaster or conflict. Besides, disasters affect the technological systems and networks, such as communication lines, technology infrastructure, and also deprive the community of its accessibility and use.

In a post by Kosasih as part of the Pacific Ring of Fire, Indonesia is dotted with numerous volcanoes, they are mainly found on the islands of Sumatra and Java [3]. Figure 1 illustrates one sample of a ring of fire in Indonesia.

Active volcanic mountains have many destructive effects, they include huge smoke or heavy ash clouds, the flow of hot and dangerous magma. A volcanic eruption affects the normal functioning of society. However, in most cases, education and training are not included in most immediate post-disaster preparedness programmes [5], yet, reports show that 28 million of the 67 million children out of school live in countries affected by conflict [2][6] and/or disasters.



Figure 1: The Bromo and Semeru volcanoes in East Java. (Picture taken from Kosasih [3] who also extracted from the source: GIV/MB).

Since disasters affect an entire system of the community, people need to possess appropriate and sufficient knowledge, attitudes, good managerial skills and basic technological competencies in order to live a normal life during post-disasters or conflict. Possessing and applying such knowledge, attitudes, and skills will allow the communities to earn a decent and independent living, without heavily relying on donations. This means, post-disaster training programmes and motivational activities can rejuvenate hope and promote the required innovative survival skills of the communities facing disaster challenges.

METHOD

This study aims to get the communities to have simple, suitable and readily-applicable vocational skills to earn a living. The method used in this study was a qualitative one, using a case study design on the post-disaster communities of the Merapi eruption. The techniques of the data collected included examining various documents on the eruption, focus group discussions, observations and interviews. Then, this was transcribed to obtain better themes and theses from this study.

LITERATURE REVIEW

In 2010, a volcanic eruption took place in Yogyakarta, destroying homes, buildings and a lot of the other infrastructure, causing loss of community property, physical pain, psychological problems and trauma among many people, and countless deaths were also reported, particularly in the areas close to the foot of Mount Merapi [7]. Reports emerged that the 2010 Merapi volcano eruption in Yogyakarta led to 280,000 people being displaced and living in 700 emergency shelters as refugees, facing poor sanitation, and living without enough toilets or clean drinking water. In addition, 2,000 homes were destroyed, leaving 350,000 people to be evacuated.

Public services even stopped operating, for instance, airports closed and hundreds of international flights were cancelled to and from Indonesia, and this led to a financial loss estimated at US\$781 million [7]. The people in the surrounding areas lost their daily sources of income, such as farming, animal husbandry and cow-milking, in the disaster. The tragedy directly affected the lives of communities around Merapi. Among the effects of the 2010 Merapi eruption were the destruction of farming fields, degradation of the environment, a failed harvest, a break in industry and trade, and the loss of jobs, which are the livelihood of the farmers and stockbreeders. The total loss caused by this disaster amounted to IDR 5 trillion, as reported by Syaifullah [8].

Disaster Management

On realising that the area is a disaster-prone area, the Indonesian government designed strategic efforts to protect every citizen through disaster prevention programmes, implemented before, during and after natural disasters [9]. The disaster management efforts aim to ensure the implementation of well-planned, integrated, coordinated and comprehensive disaster management to protect the public from any threats, risks and negative effects of the disaster [10].

At a macro level, many people and communities were affected, both directly and indirectly by the 2010 Merapi eruption. The direct effects included: first, fatalities; the victims who died were from the settlements in the disaster-prone area. They died from the heat-clouds and from the panic that ensued during evacuation. Second, great trauma during and after the disaster; the trauma is caused by the sudden loss of many things, including family members and properties. The shock from those sudden losses makes people face a hard time accepting the reality. Third, most of the people around the disaster area are poverty stricken; the disaster dragged them into a worst psychological condition, because they could not afford to suffer such another grave burden. Fourth, the loss of jobs resulted in a decrease in the growth of the economy in the area.

Post-Disaster Training

Through training and education, it is expected that the man can overcome future difficulties and will be a smart, skilful, independent and responsible human being [11]. Life-long learning enables individuals to develop themselves to be critical, creative and able to handle changes, able to survive under any condition, strong and confident. As stated in National Regulation Number 20 of 2003, concerning National Education System ...*education is obtained through formal, non-formal, and informal ways.*

Wamaungo et al see society-based education as an education effort implemented in the society to satisfy the needs of the learners, which are relevant to the needs of society development [12]. It is managed (designed, implemented and evaluated) by the society, emphasising the active participation of its members in each step of the management [12]. In line with this statement, it is possible to implement non-formal education in various situations, including in the management of post-Merapi eruption communities.

Training is defined as an attempt to improve employee performance in a currently-held job or one related to it [13]. It is also defined as a part of education-related activity with learning processes to obtain and develop skills outside the existing educational systems, implemented in a relatively short time using methods that favour practices rather than theories [14]. In other words, training is a short-term education process using systematic and organised procedures, focusing on learning technical knowledge and skills for certain purposes. Training is inseparable from education, in the sense that both involve the learning process to acquire skills and develop knowledge and attitudes, so that the learners can fulfil their duties. The difference is that training is conducted outside the existing system of education.

Training and development is a strategic form of human resources empowerment, because training always involves values, norms and attitudes of the individuals and groups participating in it. The training programmes are always designed for the purposes of individual development, professional development, problem solving, remedial actions, motivation and mobility improvement, and safety of the members of the organisation. Training should be developed to be as relevant as possible for the current and future needs of the society in which it is implemented.

Survival Strategy and Skills

Continuous help from the government and non-government parties might cause the development of a dependent mentality among the disaster victims. The passing of time will turn the need to get help into the habit of getting help, which will make it even harder for the post-disaster community to support their own life to independently earn a living.

Survival strategies implemented by people are determined by internal and external forces. Internally, the way someone handles difficult times depends on his attitudes, spirit and determination, belief in God, courage to take risks, initiatives and vision of a better life. All these factors emerge in the form of confidence that someone is able to overcome the difficulties. Externally, one's survival strategy is influenced by their solidarity to their groups and the groups' attitudes.

Field observation revealed that the farming and the grazing fields (for cattle), were covered by sand and stones. What the post-disaster community mainly needed was ways to satisfy their needs continuously. The people in the post-disaster community of Mt Merapi admitted that they mined the sands to earn a living, even though that activity is prohibited due to the great likelihood of cold lava pouring from the mountain. This is the easiest profession they could turn to without any special skill.

FINDINGS AND DISCUSSION

The findings of this study revealed that the local strategy the communities used to survive was enterprising by optimising the human and natural resources, i.e. sand and stone mining activities.

Vocational skills training is conducted, so that the members of the post-disaster community can overcome future challenges and be smart, skilful, independent and responsible human beings. The training needed by the post-disaster community is the training to be stone mason, as a way to earn a living, as well as an effort to rehabilitate and reconstruct the community.

Education is the primary capital in shaping way of thinking and developing intellectuality; education is the means to pass the values, ideas and ways of thinking; through education, humans will find it easier to differentiate between right and the wrong, the possible and the impossible [15]. Meanwhile, training is a part of education that represents a process of developing individuals, society, institutions and organisations. Education and training are two inseparable parts of the human resources development system, in which human resources are designed, placed and developed.

The discrepancy between the current situation and the preferred state is usually caused by two natures of human beings: changes and aspirations. Changes are the driving forces, while aspirations are the pulling forces. The interaction between the two results in the need for training. The function once known as *training* has had to expand its own technology [16]. It has had to locate and implement non-training solutions for all those performance problems, which are not caused by not knowing how.

Training is a suitable solution for *performance problems* caused by one's lack of knowledge and skills to perform their duties. Changes that cause problems need to be handled immediately, while aspirations should promote the development of the person. The discrepancy that resulted from the Merapi eruption, put the community in an uncertain state, particularly concerning the basic needs of food, clothes and shelter. Vocational skill training would facilitate the members of this community to acquire skills needed to change their main source of living. The vocational skill training can be implemented in stages adapted from [17], and they include:

1. An assessment stage: the assessment of society's need, the assessment of the training needs, the development of training goals and evaluation criteria;
2. A training stage: designing and selecting the procedures of training, the implementation of training;
3. An evaluation stage: measuring the result of the training; comparing the result with evaluation criteria.

The target of the training is adults who are victims of natural disaster, aiming to enable them to earn a living by improving their knowledge, skills and attitudes; and to enable them to live independently without help from donors. The success of training is evident from how many of the expected changes occur in the participants as the result of the training process. The success of training is usually measurable from its goals.

Identification of the learners' needs, aspirations and potentials aim to motivate the learners to develop a sense of belonging. Identification of needs is conducted by collecting information through statements of the learners concerning the knowledge, skills, attitude and values they expect to possess after the training. This identification serves the purpose of balancing and perfecting the needs and aspirations developed by the trainers.

Being independent is one's tendency to do something without asking for help from others. Independency is one of the development tasks, covering emotional independency, behavioural independency and values independency. It is characterised by initiatives, willingness to overcome difficulties laying ahead, attempting for perfection, feeling satisfaction from one's own work and doing routine tasks alone. Independency is a foundation to improve the quality of work.

To create their future, the post-disaster community cannot depend on others' help forever. A post-disaster community is capable of utilising and optimising the potentials of its people. The members of a post-disaster community are adults and are capable of thinking as adults. Independent people are usually more responsible for the lives they currently, and will, live. They are able to take care of themselves without help from others.

Besides mining sand, the people of the post-disaster community can also mine stone and work as stonemasons. There are also many tourism sites in the area that attract domestic and foreign tourists with various agendas, including examining the post-disaster situation, providing help, surveying, conducting reforestation, field work, and others. Their visits will help the economy of the people, if the community is creative enough to grab the opportunity.

Vocational skills training is implemented with coordination with related authorities. This includes the socialisation, planning, implementation and evaluation stages of the training. The learners can easily follow the programme from the delivery of materials to the practices in the field. Using the participative learning approach and the adult learning approach, the result of the training, i.e. the improvement of skills and acquisition of knowledge, can be measured by the participants themselves. Through comprehensive and flexible methods, the community is ready to receive the training, and is ready to apply it in the rehabilitation and reconstruction of their society.

One of the problems faced by the post-disaster communities is the loss of sources of living as farmers and stock-breeders. It is a difficult matter, because the people do not possess any vocational skills to turn to other sources of income. This makes vocational skill training a necessity for the post-disaster communities. The graduates of the training will create work groups in each shelter or settlement area. The groups are focused and placed in different locations, so that the skills will not be focused only on one area. It is also to avoid unnecessary competition between groups or, in other words, to ensure the distribution of earnings.

The women in the communities are also provided with vocational skills training. Most of the people who own motorcycles are able to save themselves, using the vehicle to evacuate quickly during the eruption. In the post-disaster society, the men have initiatives to utilise the motorcycles as public transportation for tourists. They are grouped based on the tourism sites. The realisation of this work opportunity, including the placement or location and the time for doing the work, is discussed together with the members of the communities, coordinating with the head of the village.

Social changes are the changes of human lives, including the changes in social values, social norms, organisations' behavioural pattern, social structures, social levels, authority and power in society, social interaction, and other social aspects [18].

Social changes mean that today, there is something different from the past. The main reason of why people are against change is their fears of transformation, fears of the unknown, fears of having, doing or receiving something different. However, for most people, the scariest thing is when nothing changes, everything stays the same. The eruption of

Mt Merapi resulted in great changes; people changed from having farms to having hot lava, from having a source of income to having no way to earn a living, from being productive to being helpless.

The changes in society result from the acquisition of knowledge, attitudes, values and skills, which enable the post-disaster community to develop an independent living. Taking initiatives, with or without help, is a sign that they are not afraid to change, both individually and as a community.

The result of the vocational skill training is that there are changes in learners' knowledge, attitudes, values and skills. The changes are evident in the individuals, groups or the community as a whole. The changes in work orientation are needed in today's society. For instance, in agricultural society, the change of job may occur, because the lands to farm are getting smaller or because, they are destroyed by natural disaster, which results in a smaller income for the farmers.

In the post-disaster community, the implementation of vocational skills training yields positive impacts in the participants. The participants are able to work independently and in groups, utilising the newly-acquired knowledge, attitudes, values and skills, to earn a living. The training is a necessity for the post-disaster community as an effort to empower the people to develop their skills and strengthen their will.

CONCLUSIONS

A strategy to sustain people's life in a post-disaster community is vocational skill training, optimising the available natural and human resources. In post-Merapi eruption communities, the abundant amount of natural resources, in the form of stone and sand, were mined and sold to provide earnings for the people without requiring them to have certain sets of skills. The people have vocational skill to re-organise their lives.

After receiving vocational skill training, the people are able to apply their newly-acquired skills in their daily lives; they possess new knowledge, attitudes, values and skills. They are able to work and make a living, as well as teach other people by developing new training groups. The post-disaster communities acquire skills to better rehabilitate and reconstruct their lives, which will speed the recovery process.

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