

EVALUATION OF TRAINING AND EDUCATION PROJECTS FOR SAFETY AND HEALTH OF LOGGING WORKERS IN TURKEY

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ABSTRACT

Nearly 7.4 million people live in about 20,000 forest villages in Turkey. Event though forest resources and people living in those villages provide important economic and socioeconomic benefits to the country, this is the community which represents the most disadvantageous part of the society in terms of benefits from the gross national product and education and health services nationwide. In the country, forest harvesting has been performed by the Agricultural Development Cooperatives formed by the forest villagers with the provisions of the Turkish Forestry legislation since the early 1970s. With a given priority to local forest villagers for felling, delimiting, cross-cutting, skidding and transporting, the forest-village cooperatives accomplished nearly 70% of total round wood production from the forests in 2006. It is the fact that a big majority of the workers is lack of proper education and training for forestry operations. Since the operators for chain saws are generally taught by either their colleagues or relatives, they are aware of basic and advanced harvesting techniques. As a result of the fact that they are not trained for health and safety issues in forestry, the usage rate of safety helmet, ear muffs, safety trousers, and safety boots is still 1% throughout the country. Felling aids for forestry are not well known. Due to these reasons, safety and personal protective equipment (PPE) for forestry operations is not well known and deadly and costly accidents become inevitable. One of the main reasons for low awareness of safety and health issues in forestry harvest operations in Turkey has been lack of periodical and proper training programs for forestry workers since the last 30 years. In order to overcome this problem and to spread special training programs throughout the country, two different pilot training projects including practical and theoretical knowledge were performed on tree felling and safety with attendance of 177 logging workers for duration of ten days in two different provinces. The main objective in these projects was to teach the loggers safety and health issues in forest operations, preventing environmental hazards, and minimizing production losses. It was found that the loggers who attended the programs showed very high motivation at the classes and spent a lot of effort to accomplish their tasks even though no training and special education had been given before. The questionnaires applied to the workers showed that the programs were quite effective and helpful by 84% of the workers and 100% of the workers would attend similar training programs once again in future if available. It was also found that the workers became aware of importance of PPE after accomplishing the programs; however, the workers would not have and use PPE due to its high costs.

Keywords: *Turkish logging workers, work safety and health training, wood harvesting*

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1. INTRODUCTION

The forests of Turkey occupy 27,2% (21.2 million ha) of the overall area. 99.9% of the forests are under the possession of the state. 60% of the forests are composed of gymnosperms, 40% are composed of angiosperms. The productivity of the forests of Turkey, which means the annual increase, is 36 million m³ and the volume, which must be harvested in the management plans is 16 million m³. On the other hand, annual wood production is about 13,5 million m³, and 60% of this figure is industrial wood (Ministry of Environment and Forestry 2006).

In overall Turkey, 7.4 million forest villagers are live in about 20,000 forest villages. The Forest villagers are the section that receives the lowest share from the domestic income of the country and that benefits the education and health services least. Since 1970s, and within the direction of the legal rights provided by the state, wood harvesting has been realized primarily by agricultural development cooperatives that are established by the forest villagers. In 2006, the cooperatives realized about 70% of the wood production of the whole country. The number of workers involved in the wood harvesting realized overall Turkey, although varies each year, is accepted to be 300,000 (Tümerdirim and Dođru 2006).

2. SOME REALITIES OF TURKISH FORESTRY

In Turkey, most of the forest workers, especially the chain saw operators, involved in tree felling are not trained. The operators trained within the scope of the project had learned using the chain saw by themselves, from the family or from their friends. Usually they are not aware of the health and safety risks and actually they do not care. Even the experienced logging workers do not pay attention to safety and they perform risky behavior.

The factors that increase the risks regarding health and safety in wood harvesting in Turkish forestry are grouped under 6 main titles:

A – Natural Environment: Most of the forest areas in Turkey are in mountainous, rugged and sloppy regions. Preference of tree felling in winter in these regions increases the influence of climate conditions. In some regions there are dense vegetation and bushes under the trees, which make it difficult to work, to carry the machines and to communicate.

B – Social Conditions: About 10% of the population in Turkey is forest villagers. These people form the group which receive the smallest share from gross national product in overall country, which is the poorest social class and which has the most limited agricultural production facilities. The forest villagers (forest workers) are the group which benefit the education and health services least, which has a lower ratio regarding the literacy rate in the country. About 90% of forest workers do not have any registration in any social security or employment agency (DPT 2001; OR-KOOP 2005). There are also insufficiencies with regard to the nutrition, housing, and clothing, when compared with overall country.

C – State Services and Work Legislation: There are insufficiencies and deficiencies in the legislation and regulations of forest workers regarding the matters of work safety and health. On the other hand, the application of work safety rules is not realized as arranged by the laws and there are no agreements concluded between the workers and employers.

There is no accident recording and reporting system in the forestry sector in Turkey. The lack of accident investigations, accident statistics and analyses makes it difficult to determine unsafe conditions and unsafe acts. There is not much research in the field of forest work.

D – Lack of Professional Training: For nearly 30 years, there has been no regular, periodic and planned training for forest work in Turkey. Due to lack of professional training, the logging

workers are not aware of correct work techniques and methods for prevention of accidents. The logging workers do not have any experience in the matters of performance of the work by utilization of safe and appropriate work techniques, realizing and evaluating safety and health risks and proposing solutions.

E – Insufficient Motivation: Unstable employment facilities in the forest enterprises, low wages, lack of professional awarding and appreciation form the fifth group.

F – Others: Within the frame of the last group, the following problems may be listed: insufficiencies regarding organization, insufficient supervision, insufficient health services, the forest workers not using PPE, lack of information on PPE and high level of their costs, deficient first-aid training, lack of manuals enriched by visual material that are prepared for the workers.

3. THE OBJECTIVE OF THE PROJECTS

At two regions of Turkey (Kastamonu and Ardahan), theoretical and applied two pilot training projects were realized for total 177 logging workers for a period of ten days, regarding the matters of tree felling and work safety. The projects were prepared and organized by the Forestry Cooperatives Central Union (OR-KOOP). The reason for application of these projects was to generalize countrywide training concerning the chain saw operators and other logging workers and to form the grounds for certification of the operators. In order to achieve the purposes of the projects, and to shape training programs in future, questionnaires were filled by the workers who had attended the training. To consider work safety rules by the forest workers, not to generate environmental damages and to minimize the production losses were among the objectives of the projects.

The studies can be grouped under 4 categories; 1) to give information to chain saw operators regarding efficient and safe applications of the main stages of the production process. 2) to increase the professional attitudes of the chain saw operators and to form behavioral change. 3) to give information to the operators on PPE, which are appropriate for their works, and on first-aid. 4) to teach the chain saw operators basic principles of work health and safety and to prevent their careless and risky behavior.

In the training projects, by starting off from the principle of “good worker is the one who works safely”, the following are aimed:

- a) to approve work safety and health principles,
- b) to consider other workers' health and safety in work place,
- c) to provide much safer working conditions,
- d) to obtain general understanding and knowledge on other factors in work place such as noise, chemical substances, vibration etc.,
- e) to affect positively other workers being employed in their villages and cooperatives, and
- f) to possess printed materials related to tree felling and safety prepared in basic and understandable language along with pictures.

4. THE CONTENT OF THE TRAINING

Within the frame of the training, 45 hours of theoretical and 15 hours of applied training was given to the forest workers during ten days. Before organizing the training, observations were realized on the land, face-to-face discussions were held with the operators, the managers and chiefs were listened to, and the training required was tried to be determined on the basis of the current information and techniques and the lacking information and techniques. In determination of the content of the training, the answers to the questions such as “what should the workers learn and what should they do

after the training?”, “which theoretical and practical subjects should the workers learn during the training?” constituted the content of the training. These questions are given below:

- How should the maintenance of chain saw be performed?
- How should the maintenance of chain and bar be performed?
- How is chain saw started safely?
- Which aid tools are required and how are these tools used?
- How should a safe tree felling be performed?
- How can be avoided from kick back?
- How should the trees be felling correctly and safely?
- How should the trees with problems be felled?
- How should the hung-up trees be taken down?
- Which factors are important in delimiting and crosscutting?
- How should the wood under tension be crosscut?
- What are the dangerous conditions in the forest?
- Which PPE is required for chain saw operator?
- How can the correct work postures be provided?
- How should the first-aid be performed and what should be taken into consideration?

5. ADULT TRAINING TECHNIQUE

Within the frame of these two projects, the basic principles of adult training were taken as the base for the training technique. The reason was due to some characteristics of the adults listed below (Goad 1982, APA 1996, Bilir 2004):

1. The adults, although they had already selected their own profession, are open to learning.
2. In traditional training, the students are requested to comply with the program prepared. In adult training, the program is prepared in compliance with the needs and interests of the learners.
3. When the adults do not feel any need and benefit in the training in real sense, they go. Problems and examples must be realistic and appropriate.
4. Adults want their knowledge to be approved. Due to this, an “equal” relationship between the instructor and the learners is the best.
5. Adults want to be involved personally in the learning process.
6. Adults combine their knowledge with the information they had just learned and with their own life experiences.
7. A non-authoritative and an informal environment is the best for the adults. Authoritative and oppressive training influences learning. Authoritative training institutes are not able to activate the minds of the adult learners.
8. Adults resent a grading system. Learning can only be achieved in an environment where there is no grade.
9. A significant number of the forest workers can neither read nor write well.

In a well-organized adult training, contribution of physical environment to learning process cannot be neglected. In this sense, special attention was paid to the physical factors such as invitation for training, registrations, preparation of the materials, training class layout, audio and visual tools, meals and breaks, written materials, certificates and awards.

Moreover, in the training projects, some basic factors of the efficient training of the logging workers were also considered: 1 – A content, which the developed audio/visual elements and important points transferred were adapted to the real world, was prepared. 2 – Since the best guidance method is to ask questions, general questions were directed to the whole training group. 3 – Positive feedback application was performed. Good questions and good answers were awarded. When people

do something good, they like being told and praised. 4 – A perfect training environment was provided by performing all the preparations in advance, and leaving a good influence, motivation and exciting learning experiences.

Within this direction, correct techniques were explained during the training, pictures were shown, videos were watched, questions were asked and a discussion environment was formed in order to share the experiences.

6. FIELD APPLICATION: ENTRY INTO THE KITCHEN

Field application was performed in order to observe under actual work conditions, the contribution, which the loggers had provided for themselves through the information they had received and shared during the training. In the application, the approaches of the workers to the techniques learned and their safe behavior changes were observed and their skills were exposed within the direction of some criteria. During the field application, successful operators were awarded by PPE.

Some of the factors, which the workers were asked to consider during the application are listed below:

- Selection of felling direction
- Distance of deviation from felling direction of tree
- Depth and angle of undercut
- Width of hinge
- Threshold height
- Application of work safety principles
- Non-existence of breaks, butt cracks or splits in the felled tree
- Stump height
- Moving away to escape way

7. EVALUATION OF THE TRAINING PROJECTS

Through the discussions held during the training and the applications on the field, it was seen that the loggers, although they have serious deficiencies in these matters, were highly motivated in order to eliminate these and exhibited safe behaviors and they showed the due efforts. Moreover, by the end of the training, 115 workers filled questionnaires and they were requested to evaluate the training.

In the evaluations, the total rate of the loggers, who marked the contribution of the training as “very much” (49%) and “much” (35%), is 84%. 16% of the loggers stated that the contribution was at medium-level. There was no operator who said that the training did not provide any contribution at all. 76% of the workers involved in the study evaluated the training as very good, 23% as good and 1% as medium. These results showed that the content, technique and organization of the training were performed properly. The question “was the period of the training sufficient?” was replied by 19% as insufficient and by 81% as sufficient. Nobody evaluated the period of the training as too much. If such training would be repeated at specific intervals, the rate of the workers, who said that they would attend again, was 100%.

85% of the chain saw operators stated that they had seen PPEs for the first time in this training, 96% stated that they had watched training videos/VCDs regarding the tree felling techniques and work safety for the first time. It was determined that only one of the workers attending the training was using PPE and the others did not use PPE at all. The sales figures of the distributors selling chain saw in Turkey for the last three years also support this phenomenon.

Some of the answers given by the operators to the open-end question in which the operator's opinions and suggestions regarding the training were requested, are given below:

- It helped to increase our self-confidence and motivation.
- Our knowledge is renewed.
- This training should be periodic and continuous.
- Application period could be longer.
- The forest enterprise must give priority to certified operators.
- The video/VCD images shown during the training should be prepared in cutting areas with the conditions prevailing in Turkey.
- We learned the points, which we did not pay attention, but which are actually important in cutting a tree, debranching and bucking.
- If we had received this training before, the injuries and deaths occurring in our villages would be less.
- It helped us to be more conscious about work safety.
- Improvements should be done regarding health conditions and social security.
- Studies should be performed to provide tools and PPE for the workers.
- We recognized that the tools such as turning hook, tongs, felling lever, and wedge facilitated the work considerably.
- The wages of the people, who receive training, should be increased.
- We realized that PPE is very important for decreasing the degree of injuries or eliminating them completely.
- The prices of PPE are very high.
- PPE must be provided to the workers free of charge.

8. CONCLUSIONS

In Turkey, like many developing countries, the majority of logging workers are not trained professionally and this creates heavy and costly results. In these training projects performed at two different regions of Turkey, theoretical information was given to experienced workers, regarding learning of the work risks and application of correct work techniques and they were certificated by a short-term field study. The data obtained from these projects supported the preparation of an EU-ORKOOP collaborative project for foundation of a forest-work training center in order to be used in periodic professional training and certification of the chain saw operators. Besides this, both projects were very important for forming the grounds for determining the responsibilities of the forest workers, forest foremen, employers, manufacturers of tool and equipment and the government, regarding the work safety. On the other side, the fact that utilization rate of PPE among the operators participating in the training was 1%, was very beneficial in determining where we are on the road map related to formation of work safety culture in forest work. In conclusion, these projects proved that the different groups such as forest enterprises, cooperatives, unions, tool and equipment manufacturers and distributors and the government should be sensitive for providing work safety training and safety equipment.

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REFERENCES

- APA. 1996. Coaching The Professional Chain Saw Operator Workshop. Discussion Leader's Manual. The American Pulpwood Association, Rockville, MD.
- BILIR, M. 2004. Çağdaş Yetişkin Eğitimi Liderlerinden Eduard Christian Lindeman, Yasamı, Eğitim Görüşü ve Hizmetleri. A.U. Eğitim Bilimleri Fakültesi Dergisi, 37(2):15-25.
- DPT. 2001. Ormancılık Özel İhtisas Komisyonu Raporu, Sekizinci Bes Yıllık Kalkınma Planı. DPT Yayın No 2531, ISBN 975-19-2555-x, Ankara.
- GOAD T.W. 1982. Delivering Effective Training. University Associates, San Diego, California, ISBN 0883901730, USA.
- MINISTRY OF ENVIRONMENT AND FORESTRY. 2006. Orman Varlığımız. T.C. Çevre ve Orman Bakanlığı Orman Genel Müdürlüğü, Ankara, 106 pp.
- OR-KOOP. 2005. Avrupa Birliği Sürecinde Orman Köylüsü ve Ormancılığımızdaki Yeri. Türkiye Ormancılık Kooperatifleri Merkez Birliği (OR-KOOP) Yayınları No 4, Ankara.
- TUMERDIRIM M.F., DOĞRU M. 2006. Assessment of Turkish Forest Legislation With Regard to Forest Villagers and Cooperatives. Legal Aspects of European Forest Sustainable Development, Proceedings of the 8th International Symposium, 10-14 May 2006, Istanbul.