

EXECUTIVE SUMMARY

INTRODUCTION

Eco Task Forces were raised under the aegis of Ministry of Environment and Forests and Ministry of Defense in conjunction with states on priority tasks for challenging assignments in the ecologically fragile and sensitive areas. The objective behind starting ETFs was to solve the twin problems of eco - regeneration and rehabilitation of ex- servicemen.

There are four ETFs at present operating in 3 states of India. There are 127 Battalion in Dehradun (Uttarakhand), 128 Battalion in Jaisalmer - Mohangarh (Rajasthan), 129 Battalion in Bahu (J & K) and 130 Battalion in Pithoragarh (Uttarakhand). A few more are being set up.

*Sampling technique used was **Stratified Systematic Sampling** of predetermined number of samples on each selected site corresponding to sampling intensity based on the total area brought under afforestation and Eco Development work. Sample plots of 0.5-4.0 hectares according to the total area treated, were laid down to assess the growth and survival rate of the species planted.*

Evaluation was carried out on two broad parameters – Quantitative and Qualitative. Under quantitative evaluation, physical targets and achievements, cost economics, spacing etc. were noted while under Qualitative evaluation preference and basis of species selection, protection and maintenance, factors affecting growth and survival rate, motivation and technical competence of the personnel and public participation were examined.

127 BATTALION, DEHRADUN (UTTARAKHAND)

The 127 Battalion, Dehradun was set up on December 1, 1982 with the aim to control the process of ecological degradation of Shivalik hills and area around Mussorrie where continuous mining over the years had wreaked havoc on the flora and fauna of the region. The ETF has given a task of regenerate an area on of 2400 ha under Aglar sub watershed for eco restoration and landslide rehabilitation jobs. The unit began working in Aglar Micro Watershed area 1994 onwards and is still working in this area. The battalion has covered about 2400 ha till 2007-08 from 2002-03 and planted 18.71 lakh saplings and seedlings and 53.17% survival was recorded. Besides afforestation, soil conservation structures like check dams and side walls have also been constructed.

Species for plantation were selected in consultation with experts from Forest Research Institute, Dehradun. Preference was given to species which would be adaptable and grow on calcareous soil like Surahi and would provide fuel, fodder and timber to local people.

The protection of plantation is one of the challenging tasks due to extensive grazing, fires by villagers, human interference in the form of grass cutting, poor soil cover, termites and steep terrain since these factors affecting growth and survival rate of the species. However the protection is being done by watch and ward and barbed wire fencing. But all these measures of protection has not been effective because of the difficult terrain and frequent damage to the fencing material by termites and villagers.

Local Public Participation is lacking in the absence of any Village Forest Committees in the areas. JFM has not been introduced and therefore benefit sharing mechanism through community participation has not yet been evolved.

Analysis of cost economics of 127 battalion has shown that per hectare cost of ETF comes to Rs. 40287.50 while per plant it comes to Rs. 47.00/-

128 BATTALION, SRI MOHANGARH, JAISALMER

This unit came into existence on September 1, 1983 with the objective of checking the process of desertification of the ever expanding Thar Desert in Rajasthan and adjoining states. The unit carried out the task of Afforestation along the banks of Indira Gandhi Main Canal. The whole track where ETF has carried out afforestation work is sandy, characterized by stabilized, semi stabilized and shifting sand dunes. The unit has started the work at Shri Mohangarh-Jaisalmer from May 1, 1997.

***Sand Dune Stabilization (SDS)** has been the main component followed to bring about a change in the fragile desert ecology. The total area planted under this scheme from 2002-03 to 2007-08 has been 2260 ha with 16,43,858 lakhs saplings. The survival percentage was upto 78%. Performance of different species has been satisfactory. Acacia tortilis has been the main species planted under this component, though other species like Babool, Ber, Khejri have also been grown. The work is commendable in view of highly hostile circumstances.*

Species have been selected keeping in mind suitability and adaptability of species to harsh geo physical conditions with a view to stabilizing vast stretches of sand dunes. Preference of local people has also been taken into consideration.

Both biotic (grazing, termites and illicit felling) and abiotic (soil, spacing and size of plants) factors have been at play hindering the growth of plants and affecting survival percentage.

Though the plantation sites have been fenced by barbed wire as a measure of protection, fencing has been broken at places and animals are let loose to graze by the local people. In absence of any village Forest Protection and Management

Committees (VFPMC) in the area, participation of local people is lacking. There is no common platform for village people for any kind of collective action. Unless effective VFPMCs are established to take care of the plantation and stake of local people is created, the plantations are not going to succeed.

Analysis of cost economics of 128 battalion has shown that per ha cost of ETF comes to Rs. 1,15,810/- while per plant it comes Rs. 187/-

129 BATTALION, BAHU AND JINDRA

129 Ecological Task Force was set up on January 29, 1988 in Srinagar to rehabilitate the ecologically degraded and fragile areas. After establishment the Battalion has moved to Samba and now working at Bahu and Jindra ranges of J & K since 2002-03 to 2007-08. The unit has been entrusted to carry out afforestation, soil conservation and allied activities and create environmental awareness among the local people.

*The unit has successfully planted 7, 79,900 plants in Bahu & Jindra in 1005 ha. The average survival rate is 70.97%. The main species planted have been Subabool, Sissoo, Chir, Bamboo, Kachnar, Khair, Jamun and Aonla. Besides these some other species have also been planted. The performance of bamboo (*Dendrocalamus strictus*) has been the best followed by Chir, Khair and Sissoo.*

The unit has been successful in checking severe soil erosion conserving water by adopting measures like check dams, gully plugging, crate work, nullah etc.. Effectiveness of these structures was assessed both physically and through discussions with local people. Surface run off and the resulting siltation have reduced drastically.

The unit has the unique distinction of conducting environment awareness programme and nature conservation workshops for officers, JCO & ORS of the Indian Army, local people, school children and concerned citizens of the area. A number of field visits, van mahotsava and camps have been organized.

Assistance of Forest Department has been taken in species selection. Preference were given to the species which provide fuel wood, fodder, small timber, NTFPs etc. to the local people and also suitable for the agro climatic zone and terrain of the area. The main factors affecting survival and growth of plants are biotic- grazing, termites, human interference and abiotic- terrain, soil quality of plants.

All the closures of this unit, which are under the control of ETF protected by four strand barbed wire fencing on cemented poles and watch and ward by ETF men. The jawans of ETF have tried to develop rapport with the villagers, so that they can co-operate them in assisting in protecting the area on their own. After they leave, the plantations should be handed over to well trained and legally

established Village Protection Committees to ensure their survival and sustainable growth, if dependable VFCs are formed in due course or other wise areas to be handed over to the State Forest Department for the needful. Calculation of cost economics of 129 Battalion has shown that per ha cost of ETF comes to Rs. 87306.82 while per plant it comes Rs. 120.00/-

130 BATTALION, PITHORAGARH

130 Battalion was raised in April 1994 from the savings accrued from disembodying 127, 128 and 129 ETFs for 4 months in a financial year. The objective of this unit is to reverse the process of ecological degradation in the Himalayan region. upto 2007-08 28.14 lakh saplings have been planted in an area of 3141 ha in the two projects i.e. Jhulaghat and Ramganga watershed.

Under Jhulaghat Sub watershed Project, 2241 hectares of area has been planted with 19.14 lakh saplings with an average survival of 62.03% till 2005-06. The main species planted are Surahi, Chir, Bakain, Banj, Pangar, Padam, Kachnar and silver oak. All the species are doing well. However, in Ramganga sub-watershed a total of 1000 ha has been ecologically restored with 9 lakh saplings. Species have been selected on the basis of soil type, altitude of the area, local advice and preference of people, availability of species and technical advice from Forest Department.

The main factors affecting the growth and survival percentage are biotic (grazing & termites) and abiotic (human interference and inhospitable terrain).

130 Battalion has been providing protection both by barbed wire fencing and watch and ward by their men. The Van Panchayats has been formed to facilitate the task of protection and maintenance. The Van Panchayat has appointed a guard from amongst themselves who is responsible for protecting the area. VFCs have been formed only around ETF areas otherwise there are no other VFCs.

Calculation of cost economics of 130 Battalion has shown that cost per seedling raised by ETF-130 comes to 33 to 46/-, while per hectare cost is 32,000-50000/-.

Conclusion and Recommendations

The ecological restoration work carried out by the Eco-Task Forces deserves to be commended as the ex-servicemen who once served the nation with tanks and guns have now once again served the country with spades and that too in very difficult areas. The ecological and social impacts of the project activities have been beneficial. Re-vegetation of the area has led to an increase in humidity, reduction in day temperature, checking of sand dune movement and wind velocity and improving the habitat of local fauna. Socially, the project has been and will be providing usufructs in the form of fuel wood, fodder and timber to the local communities. At places like Jaisalmer, the sighting of wild life in plantation

area is a significant change. Based on the present evaluation on the eco-restoration work done by the Eco-Task Forces the following recommendations have been made:

- *Regular monitoring of the projects at every step by the concerned agency (Forest Department) should be done so that the problem could be addressed on the spot.*
- *Mid and end term (immediately after the project) evaluations should become a regular feature of ETF projects. Mid term evaluation has greater significance over end-term because any shortcoming if found during the mid-term evaluation would be immediately taken care of during the project period itself.*
- *Timely supply of materials ensures timely completion of project activities with the desired results. Except for 130 battalion, material supply to other ETFs has not been time bound. There should be mutual trust between the defense and Forest Department for supply of material.*
- *The VFC should be formed by the forest department to insure the sustainability of the plantations, after that the plantation should be handed over to the department. ETFs may also try to form VFPMCs from the very first year in collaboration with the Forest Department for effective protection of the area and start giving them benefits of grass and fuel from the area. The ETFs should continue their watch and ward till effective VFCs are formed. They may claim additional expenditure for maintenance after 3 years. As long as ETFs are protecting the area, the success standard is high. After handing over the raised plantation may get a set back if VFCs do not cooperate fully.*
- *In order to make the work of ETF sustainable, it is important that VFCs are constituted either before or during the deployment of ETF in the area. For this certain percentage of the cost reimbursed by the MoEF may be allowed as Entry Point Activities (EPAs) for rapport building. ETF personal should also ensure the participation of local community in selection of species for plantation, implementation and more important in protection also.*
- *Officers and Jawans of Eco-Task Forces have felt the need of training on technical aspects of forestry. Such trainings should be conducted on a regular basis through short training courses by the concerned State Forest Department. This would greatly enhance the competence level of the personnel in the field and result in quality work. It would be more beneficial if the department groom some personal of ETF and nurture them as a "Master Trainer". The same will be cost effective and more purposeful.*

- *An important aspect of the Eco-restoration work by ETF is the benefits accruing to the local communities in the form of fuel, fodder and timber. No doubt the project has been successful to an extent in meeting the above mentioned needs of the people but nothing can be said without quantification of benefits reaching up to the people. This is because there is no data on the quantity supplied, collected or consumed by the communities. Therefore, it is suggested that to have an estimate of the quantum of direct benefits reaching to the people, the collection and consumption of usufructs be recorded / quantified by the ETF till the time of handed over of area to the Forest Department. There should be clear cut resolutions for usufruct sharing mechanism.*
- *It would certainly be of immense help to record changes in the micro climate of the area to know the exact status of ecological restoration. This can be done in collaboration with the meteorological office of the area concerned and collection of climatic data and increased flow in lower streams, increased agriculture and dairy production in nearby villages for which data needs to be collected, regularly both by ETFs and the Forest Department.*
- *The establishment cost also included in plantation cost in assessing the cost per hectare of plantation carried out by the ETF. Whereas in case of Forest Department no establishment cost taken into consideration at the time of assessing per hectare cost of plantation. Therefore the per hectare cost of ETF plantation come higher than forest department. It would be better, if MOEF suggest them to maintain two separate records one for planting operation and one for establishment. The same will also helpful in assessing the actual per hectare funds spent by the ETF as well as Forest Department*
- *Record Maintenance is one of the areas, which require immediate attention. Maintenance of information in the form of organized records, makes retrieval of data for reference, analysis etc., easy. A systematic report also ensures smooth flow of information in an organization and forms the basis of an efficient Management Information System (MIS). It was found that it has already been mentioned earlier, that records of afforestation and pasture development like plantation journals, numbers of different species planted under different components, etc. have not been maintained properly. Even the financial detail of the money spent on the material support to ETF for which the State Forest Department is responsible is available only for few years. Therefore, periodic maintenance of records is a must.*
- *It was found that on an average an officer is stationed at the headquarters for a period of two to three years when the project period is of more than 5 years duration. Moreover, when an officer joins the unit, he is usually*

ignorant to the concepts of forestry and gradually acquaints himself in subsequent years. However, by the time he gets well versed and starts delivering results he is transferred and a new officer with little or no knowledge of forestry takes charge. In this way, the new officer starts working from scratch. This has been the usual administrative practice and has been affecting work to a great extent. There should be an average of five year tenure posting of officers in such areas.

- *According to Territorial Army norms, it is not possible to have the same officer for the whole duration of the project but the service tenure of an officer can and should be increased to four to five years so that he is able to deliver the desired results.*
- *The ETFs may consider employing retired Forest Rangers, Foresters and Forest Guards in equivalent grades of the ETF for strengthening technical knowhow of their people and better control in the work.*