AN ECOLOGICAL AND SOCIOLOGICAL ASSESSMENT OF SIX
"MODELS" OF ALIEN PLANT CLEARING IN THE CAPE PENINSULA,
SOUTH AFRICA

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Abstract

Many areas of South Africa have problems with invasions by alien trees and shrubs. These alien plants often increase plant biomass, increasing transpiration and thus decreasing the stream flow in catchment areas. In the Cape Peninsula several organisations are involved in clearing, some of them use permanent staff, some casuals, and some utilise volunteers depending on the authorities in charge and funding. This study assesses the ecological and socio-economic effectiveness of alien clearing programmes of six organisations around the Cape Peninsula. Face-to-face interviews were conducted with project managers to gather ecological and cost data. Socio-economic effectiveness was determined through interviews with workers at group discussions and using questionnaires.

There are marked differences in the training offered and the costs of clearing alien plants due to different management approaches and funding schemes. The training that the six organisations offer range from technical training to business management and health care. Although alien clearing is a sustainable job, the type of skills the workers are getting are important because less people will be needed in future for follow ups these multi-skilled workers will be able to identify other job opportunities.

The SPM has highest costs of clearing per hectare in all levels of infestation in the six organisations. It is also the only group that has pension fund and medical care. Most workers complain about hard labour and are concerned with the present pay they are receiving. About 52% of the workers have good working conditions and 50% classify the supervision they are getting as good as well as their relationship with the supervisors. The FoS is the only organisation that does not employ people, but it is highly involved in education of school children on issues relating to alien plants. The potential to create jobs has been demonstrated by the FWWP and the RFRT as more people have joined in these
organisations. It is important that the six organisations communicate in order to share their strengths because some of the organisation leaders have "hands on" experience on alien clearing and can easily assist the other groups on the technical aspects of the clearing programme.
Introduction

Alien plant invasions are a serious threat to natural and managed ecosystems world-wide. The number of species involved and the extent of existing invasions render the problem virtually intractable, and it is likely to worsen as more and more species are introduced to new habitats and more established invaders move into a phase of rapid spread (Hobbs & Humphries 1995). In South Africa especially in the Cape Floristic Region the introduction of hundreds of species of alien trees and shrubs has led to many populations of aggressive invaders, which convert the species-rich vegetation to single-species stands of trees, increasing biomass and decreasing stream flow from catchment areas dramatically (van Wilgen et al. 1998). Thickets of alien trees such as wattles are using about half the water in streams draining from the western Cape mountains, and as they expand they take more water from rivers every year (Milton 1998). The management of the catchment areas in the Western Cape is aimed both at conservation of fynbos vegetation and the protection of water supplies that will sustain the ever increasing population of the Western Cape (van Wilgen et al. 1997).

There are a number of alien plant species that exist on the Peninsula but Acacia cyclops (Rooikrans), A. saligna (Port Jackson), Hakea gibbosa, H. sericea, Pinus pinaster (Cluster pine) and P. radiata pose the greatest threat to indigenous vegetation (Moll & Trinder-Smith 1992). Since the 1970's the Department of Forestry and Nature Conservation have been trying to get rid of the Australian Port Jackson and Rooikrans that have taken over the sandunes along the beaches and the pines and Hakea threaten to smoother Erica's and Protea's that tourists so admire in the mountain fynbos (Milton 1998). The alien plants can be controlled through a combination of felling, burning, chemical control and biological control (van Wilgen et al. 1992). These control strategies
are time consuming (Kluge et al. 1986, Hobbs & Humphries 1995), with the chemical and mechanical treatments being labour intensive (van Wilgen et al. 1996).

Due to the division of ownership in the past (van Wilgen 1996), some public landowners have prioritised alien weed control thus leading to an establishment of different alien clearing organisations. This division of ownership leads to problems when managing for fragmentation, fire and alien weed control. The public landowners have prioritised alien weed control and in some areas considerable progress has been made towards this goal (van Wilgen 1996). This has led to different organisations being involved in alien clearing. These organisations have achieved different degrees of success, partly because of differences in the levels of funding, but also because some organisations have been more successful in merging objectives related to effective alien plant control.

One of the primary aims of the alien weed clearing is to prevent stream flow reductions, which can amount to 50% of the stream flow on some areas (van Wyk 1987). Alien weed clearing can also be important for the ecological functioning of systems, productive use of land, reduction in intensity of fires and floods, catchment stability, erosion and siltation and social benefits such as job creation and skills development. As more organisations are involved in alien clearing more people are employed and are able to gain skills. This is important for South Africa as this country has a large number of unemployed and unskilled people due to past apartheid laws (Joyce 1990). The organisations that are involved in employment of people for clearing alien plants fall under a programme of job creation which is one of the six pillars to promote social equity based on South African realities (South African Labour Movement 1996).

In this study the six organisations involved in alien plant control on the Cape Peninsula are investigated. These are the Fynbos Working for Water Programme (FWWP), the Developing contractors, the Commercial contractors, South Peninsula Municipality
(SPM), the Redhill Fynbos Restoration Team (RFRT) and the Friends of Silvermine (FoS). The study investigates how effective are the different “models” of alien clearing that have “evolved” in different situations i.e. the different management strategies and authorities that these organisations are under, in terms of clearing the aliens and addressing the pressing social issues associated with a large number of unemployed people that are mostly unskilled. The study also assesses the involvement of the organisations in improving social benefits for the communities involved in alien plant clearing i.e. improving the workers skills development and increasing their awareness in the alien plant problem.

Study Area

The Cape Peninsula, an area dominated by fire-prone fynbos shrublands with occasional patches of afro-montane forest and subtropical thicket (Cowling et al. 1996), has an exceptionally high floral diversity and endemicity. Among angiosperms alone there are 2285 indigenous species, 4% of which are restricted to the Cape Peninsula (Trinder-Smith et al. 1996). Fynbos is adapted to the summer droughts and nutrient poor soils, as well as to the fires that occur periodically in the Cape mountains (van Wilgen et al. 1996). The fynbos binds the soil, preventing soil erosion, while its relatively low biomass ensures conservative water use and low intensity fires, which in turn ensure high water yields and low impacts on the soil from periodic fires (van Wilgen et al. 1996). The greatest threats in the Cape Peninsula are urbanisation, agriculture and alien plant invasion. Urbanisation and agriculture directly threaten approximately 37% of the Peninsula’s biodiversity, and 28% by alien plant invasions (Richardson et al. 1996). Of the 28% covered by alien plants 11% is covered by dense stands and the other 33% is lightly invaded (Richardson et al 1996). The most wide spread and damaging invasive alien trees and shrubs on the Cape Peninsula may be divided into two broad categories: 1)
fire sensitive, non-sprouting plants with wind-dispersed seeds e.g. hakea and pines, which can be controlled by cutting the tree below the lowest growing shoot. 2) Fire-resistant, resprouting plants with water- and soil-dispersed seeds e.g. the wattles, which must be controlled by cutting plus herbicide application.

**Methods**

The study is divided into two parts; the first reports on the management strategies in the six organisations and the second assesses the socio-economic impacts on the workers in these organisations.

**Management strategies**

The FWWP is managed by the Cape Nature Conservation, the commercial and the developing contractors are managed by the Cape Peninsula National Park. The RFRT and FoS are non-governmental organisations that are mainly funded by the WWF. The Cape Nature Conservation and the CPNP utilise contractors with permanent staff, the Redhill Fynbos Restoration Team has permanent staff, the SPM has permanent staff but also employs casuals. The Friends of Silvermine volunteers each adopt a plot. A family, a school or an individual can adopt the plot. The conditions for adopting a plot are that the person or persons adopting the plot must be able to remove all alien plants and do follow-ups.

One member of the management team in each organisation was interviewed. In depth, face-to-face interviews were conducted in a free format (Wilson 1996) using standard questions to direct the flow of the interviews (Appendix I). Data collection was divided into two sections:
(a) Ecological effectiveness - clearing the aliens mainly dealing with short-term control aimed at removing existing stands of alien plants, usually by means of mechanical and chemical methods (Kluge et al. 1986). For assessment the following were investigated: the type of alien species cleared, the total area cleared in relation to time taken, the type of training that the alien clearing programme offers and type of skills needed for employment.

(b) Cost-effectiveness - the cost of each operation taking into account the density of aliens in a particular area. To determine the amount it costs to clearing one hectare the levels of infestation, fuel costs, man hours, accessibility, the type and maintenance of tools are taken into account.

Job satisfaction

Two types of interviews were conducted: in the first, a group of six to eight workers from each organisation were interviewed. In the second interview ten workers from each organisation were asked to answer a standard questionnaire (Appendix II).

Results

Description of control programmes

Each of the organisation clear specific land e.g. SPM clears the land under the South Peninsula Municipality; the RFRT clears the private land in the Redhill/Simon's Town area. The FoS, the developing and the commercial contractors clear the land within the CPNP. The FWWP has so far cleared some land in Cape Flats and around the Kuilsrivier/Driftsand area.

The organisations have different criteria for choosing people to employ. These include need for money (e.g. if no one is working in the family so the person will be the breadwinner), level of education and skills. In addition to the permanent staff, the SPM employs casuals for contract work and priority is given to people with no income at
home, with dependants and single parents. For the work done in May 1998, 30 casuals were employed. The FWWP gives positions for their workers according to skills and education they have. At least 50% of all employees must be women and single parent households are seen as a priority with some emphasis on disabled people and youth (Marais 1998). For the RFRT at least half of the employees must be English or Afrikaans speaking for the sake of communication with the supervisors, and previous experience on alien clearing is a recommendation. This team has a total of 11 workers, more than half are women. In developing contractors team the contractor, which is the team leader, must be literate for business training, but education for the labourers is less important. Each developing contractor's team has 13 members made up of 8 or 9 women and 4 or 5 men. The four communities around the CPNP involved in the alien plant clearing as teams for the developing contractors are Imizamo Yethu, Hout Bay Fishing Village, Masiphumelele, and the Redhill community. The commercial contractors teams are usually half men and half women. Some of these contractors do not employ women if the terrain to be tackled is steep.

Training forms a major part of alien plant clearing e.g. chainsaw training is essential for productivity, safety and effective use of capital. Training is vital to ensure correct identification of target plants. All six organisations undergo technical training at for least one week. Technical training involves alien identification, removal procedures, herbicide applications and safety in using machines and applying herbicides. The developing and commercial contractors team leaders train the workers mostly do technical training in these organisations. As an easy training tool the RFRT management has compiled a book that has illustrations of the different types of aliens and explanations of how each plant spreads its seeds and how to control it. In addition to technical training half of the organisations have a range of training components. RFRT receives botany and fynbos ecology lessons whereas the FoS members get more information about alien plants in every monthly bulletin.
The developing contractors and the FWWP staff undergo business skills and first aid training. The business training for FWWP staff involves financial management, procurement and labour relations whereas for the developing contractors understanding management and generic entrepreneurial skills modules are offered. For the FWWP the additional training or education depends on the interests and knowledge of the people to be trained. It can range from three hours per person per week to a full day. In most of their training modules e.g. first aid, the workers are given certificates for future reference and proof that they have done such a module. The SPM is not involved in much training, as most of their staff is permanent and have been trained some years back. Technical training is basically offered for the casuals involve identification and cutting procedures.

Fire is an important management tool in mountain fynbos and forms an important part of the integrated programme for control of alien woody plants (Richardson & van Wilgen 1986). Some of the six organisations use fire as one of the management tools. Felled trees are usually burned in winter when the soil is wet so as to minimise the effect of heat in the soil. When the fire is very hot it burns the soil and plants can never grow again in that area. The felled trees are stacked to about 1-1½ metres high, and about the same length apart. This is done to control the fire in the stacks, as they will not be able to all burn at one time.

Management strategies

Type of alien plants cleared

The six organisations have similar objectives of capturing more water, conservation of biodiversity and job creation. Each of these organisations clear all known aliens that they find in their plots. The major alien types that have been found to be common in most areas are the pines, the hakea, Port Jackson, Rooikrans and some wattles. The six organisations clear aliens shrubs using an integrated method of cutting, applying the
appropriate herbicides and burning the felled trees. The herbicides are usually applied immediately after the plant has been felled either with a spray or application using a sponge. The SPM prefers applying herbicides by spraying as this is cheaper for them in terms of time. The problem with spraying as argued by the RFRT management is that it is easier for the herbicide to be sprayed on non-target species. To overcome this problem, SPM only sprays on calm days. If they cut the trees on windy days they wait for a calm day before spraying. However they then have to cut a little piece on the cut stump to allow the poison to penetrate. The other problem with spraying is that many small plants and those concealed by surrounding vegetation are overlooked during spray operations and some plants are not treated with correct dose of herbicide. These plants along with seeds in the soil form a reservoir that replenishes the weed infestations and necessitates frequent follow-up in previously treated areas (Lotter & Hoffmann 1998).

The RFRT management also argues that burning is expensive because it ties up the whole team for a day, as they have to make sure that everything is burnt and that the fire does not spread. Leaving the stacks packed and letting them decay naturally allows them to continue with the work. This is not a problem with the SPM team as they have a fire team that concentrates in burning while the other team can continue with cutting down trees.

Costs of the clearing operation

The groups are given a specific time period to finish clearing a particular area. Table 1 shows the time each organisation has taken to clear the target areas. The cleared area represents approximately 22% of 13 497 hectares of alien-invaded area in the Cape Peninsula. The 3 313 hectares of dense infestations (Richardson et al. 1996), 507 hectares (15%) was cleared by these six organisations in 1998/99. All the organisations except the FWWP use visual assessments on the density of aliens related to fynbos to characterise
the levels of infestations. The FWWP uses percentage and canopy cover of aliens present

Table 1: Time taken to clear target areas for the six organisations and the number of workers
involved in the clearing.

<table>
<thead>
<tr>
<th>Name of organisation</th>
<th>Total area cleared</th>
<th>Dense area cleared (ha)</th>
<th>Number of labourers</th>
<th>Time taken (days)</th>
<th>Mandays/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWWP</td>
<td>104</td>
<td>69</td>
<td>109</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Developing contractors</td>
<td>1743</td>
<td>52</td>
<td>195</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Commercial contractors</td>
<td>638</td>
<td>372</td>
<td>228</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>SPM</td>
<td>5</td>
<td>5</td>
<td>32</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Redhill Fynbos</td>
<td>443</td>
<td>11</td>
<td>8</td>
<td>260</td>
<td></td>
</tr>
<tr>
<td>Restoration Team</td>
<td>9.3</td>
<td>-</td>
<td>134</td>
<td>b20</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2942</td>
<td>509</td>
<td>706</td>
<td>490</td>
<td></td>
</tr>
</tbody>
</table>

The visual assessments by other groups are mainly done by the management of each
team. There is no standardisation among or within the organisations.

To make sure that the areas are thoroughly cleared the work in each organisation is
monitored. The organisations except FoS and RFRT have a special monitoring team that
goes out with the contractor and the project leader to see what has been cut or not. The
SPM monitoring group visits sites in a month or two after cutting or before burning takes
place. With the developing and commercial contractors, monitoring takes place

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a Total area represent light, medium and dense infested areas cleared by organisations.
b This number represents the number of days used by the volunteer group as they are able to work only on
Saturdays. The number excludes the days in which schools are involved.
immediately or after a month after cutting. Before the developing contractors start clearing 15% of the cost price for clearing is deducted by the CPNP management and will be paid to the contractors and their teams if the work is done properly. The management of the FoS and of the RFRT does the monitoring themselves, they go out on weekends or weekday evenings to all the places that have been cleared to see who has been working there and if the job has been done well.

The costs for light, medium and dense infestations for the areas cleared by the organisations are shown in Figure 1. These results (except for SPM) are in a range of those estimated by Versfeld et al. (1998) from the project managers in the Working for Water programme around South Africa (Table 2). The costs for the light and medium infestations for the SPM were estimated as 30% and 50% of dense costs respectively from the five hectares that were cleared. In all infestations the SPM has the highest costs.

![Figure 1: Illustrates the costs per hectare for the light, medium and dense infestations in the six organisations.](image-url)
Table 2: Summary of the average cost data from project managers in the Working for Water programme (Versfeld et al. 1998).

<table>
<thead>
<tr>
<th>Type</th>
<th>Dense</th>
<th>Medium</th>
<th>Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large trees</td>
<td>5 875</td>
<td>3 601</td>
<td>825</td>
</tr>
<tr>
<td>Small trees</td>
<td>1 163</td>
<td>911</td>
<td>700</td>
</tr>
</tbody>
</table>

The Friends of Silvermine have the lowest costs because labour is donated. Also, they only work with light and medium infestations that are much cheaper to deal with. For the dense infestations they usually seek help from the CPNP. Because they usually work at least once a month, their tools take a long time to wear out.

Job Satisfaction

Table 3: Illustrates the percentage responses of workers relating to the working conditions in the six organisations.

<table>
<thead>
<tr>
<th>Working conditions</th>
<th>Present pay</th>
<th>Supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine</td>
<td>10%</td>
<td>Adequate</td>
</tr>
<tr>
<td>Satisfying</td>
<td>38%</td>
<td>Insecure</td>
</tr>
<tr>
<td>Good</td>
<td>52%</td>
<td>Less</td>
</tr>
</tbody>
</table>

Most workers have good working conditions (52%), and not satisfied with the pay they are getting (42%) Table 3. Approximately 10% of the workers have had encounters of impolite supervision supervision while 50% say they are praised for doing a good job and always get advice and encouragement from their supervisors. There are a range of reasons given by the workers for doing the job. Some feel that the job is educational, some enjoy working with plants, others are used to the job and some of them have a good relationship
with their colleagues. Although the workers are concerned about hard labour and low pay, some of them have gained a lot from these projects e.g. the FWWP workers have first aid certificates, the RFRT have been able to attend environmental activities. They were invited to teach school children about alien plants and the importance of their control at the 1999 Environmental Festival during the World Environmental week (February 23rd – 28th 1999). This group was also awarded certificates for completing the Environmental Training Course that they were attending in the evenings in their literacy classes conducted by the project leader (Croudace J. pers.comm.).

Some workers from the developing contractors have experienced problems with their team leaders. They complain that some contractors rarely visit sites, they are either doing their domestic chores or visiting each other. The absence of supervisors creates problems when someone gets sick or someone cuts him/herself and the leader is not there to take care of the problem. The absence of supervisors also results in a lack of supervision. Another problem facing these workers is that they are threatened with dismissal if they complain about their work.

**Discussion**

The commercial contractors have managed to clear more that half of the total dense area cleared by the six organisations in short period of time. This may be due to the fact that they tend to concentrate on dense infestations because of the big machinery that they have. The FoS usually seek help from them when they have dense infestations (Barnes S. pers. comm.). The costs per hectare for all organisations are low except for the SPM. The high costs in SPM may be due to the fact that the workers were clearing a very dense plot of Rooikrans trees. Although the area was flat, it had a lot of sand dunes. A lot of time was also spent on stacking the trees so that they could be burnt. The high costs for the light and medium infestations can be attributed to the fact that the costs were estimated
from the dense stand of Rooikrans that they cleared as this group had not cleared ant stands with these infestations in the time of research. The SPM claims that other matters influence their cost efficiency for alien clearance. For an example when there is a fire they have to be on standby, thus reducing the time spent clearing.

It is important to emphasise to people what kind of benefits exists for them in the alien clearing programmes e.g. more water is captured, jobs are created, people can use felled trees for firewood or building furniture and selling these items and there is a chance of educating people about environmental issues. In job creation most of the semi and unskilled people have benefited and will continue to benefit in the alien clearing programmes. For example the SPM employs casual staff for contract work. The FWWP employed 3013 people from local communities in 1996 (Working for Water Programme 1996) and 3800 people in 1998 (Mohammed A. pers. comm.). In the new team in Phillipi that has just started in December 1998 where 119 people were employed, in January 1999 about ten people have gone for the first aid training with the South African Red Cross. The RFRT has been working with eight workers for two years, in September 1998 three members have joined the team. Team size is limited by available funding.

There is a need to promote and facilitate active public participation in alien control through increasing awareness. According to Ashton (1985) the implementation of educational programmes should improve the gross lack of public awareness of the invasive plant problem, which in turn could lead to an expansion in the ranks of the volunteer groups involved in alien eradication. This can be achieved as more of the organisations involved in alien clearing are encouraged to be involved in education of the communities around them. Increasing people awareness on environmental issues start with people that are employed in each organisation. Each of them knows why they have to clear aliens and they are informing their neighbours and friends about the dangers of
alien plants. The volunteer group is involved in educating school children about alien plants. Inviting the RFRT to lecture on alien plants in the environmental festival has been a big step towards people’s knowledge, attitudes and allowing them to participate in environmental activities. Considering the fact that most of the workers in the programmes were disadvantaged this also gives them chance to pick up on environmental issues and concerns that interests them.

According to Moll & Trinder-Smith (1992) various eradication programmes have been implemented by the authorities/owners in the last 20 years to control alien threat but these were uncoordinated and records not usually kept. There has been an improvement in this issue since the six investigated organisations have records of everything that they have done. In terms of co-ordination there is still a need for a standard criteria for classifying levels of infestation. This will make these organisations to be easily comparable in terms of the amount of work they are doing per day and the cost for clearing one hectare. Some group leaders have extensive “hands on” experience in alien clearing and they could help train other group leaders. It might be a good idea that the managers of all these groups meet so as to share all the knowledge they have e.g. the RFRT might help with the technical training as they seem to have more knowledge on that aspect, or else the groups could use their book as a guideline for clearing aliens.

Job satisfaction

Conventional wisdom says that job performance should be related to job satisfaction, a happy employee should be a productive employee (Spector 1997). This satisfaction is interpreted differently by different people, for example, some people are satisfied if they get a raise, some are satisfied if they get enough supervision and training. In most cases especially in South Africa workers are satisfied because they are employed, as the unemployment rate is very low. The workers in the alien clearing programmes understand
the reasons the job was created. Knowing they are involved in a project that will benefit a lot of people they render themselves as special and are proud of themselves.

The benefits included in the employment package are different. The SPM staff has pension funds and medical care provisions and the developing contractors have a community fund deducted from their contract money that can be used by that particular community for its needs such as clinics, halls or a school. The workers from the other organisations have no pension fund or medical aid and have to spend their money on medical bills of which they can be using that money for educating their kids or for buying food or clothing.

The educational and management skills that the workers gain are a major profit for the organisation and for themselves. A survey done by the FWWP researchers has shown that the workers want skills training including mechanical sewing and first aid courses. The workers are also willing to take after-hours tuition to improve their literacy skills (Working for Water Programme 1996).

To motivate the workers they can be involved in gaining more skills such as first aid and get certificates. This makes them to acknowledge their work as it leaves them with new skills that they can use in the near future for job searching or help in the community. Another motivation lies with the supervision, workers that have a very good relationship with their supervisors tend to enjoy their work and dedicate themselves into doing a better job every time.

**Future prospects**

It is important to note that no alien will be totally removed, but they can be controlled and maintained at a level where their effect is minimal. According to Moll & Trinder-Smith (1992) the eradication programmes currently implemented have tended to control the spread and in some cases reduce the distribution of alien species. Long-term maintenance will always be necessary and will probably cost R30 million per year in South Africa.
(Versfeld et al. 1998). During this long-term maintenance there will be no dense infestations therefore big machinery will not be used and fewer workers will be needed. Organisations like the FWWP, CPNP and the RFRT have equipped their workers with skills other than technical methods of clearing aliens. In future these workers will be able to use the managerial skills and the education that they have gained to open their own businesses.

**Conclusions**

All the organisations except FoS are involved in job creation. The SPM and commercial contractors only offer technical training to their staff. The training offered by other organisations depend on the need of the workers and the capability and capacity of the organisation in terms of funding and trainees. Alien clearing is a sustainable job although fewer people will be employed during the maintenance of low levels of infestations. It is very important that all organisations involved in alien plant clearing try their level best to equip their workers with valuable skills that they can use in the near future.

There is a need for communication between these organisations so that each organisation can share its strengths e.g. the Redhill Fynbos Restoration team has maintained its strong points in training, this group can therefore help in training in the form of workshops for the other groups. This might help in addressing the work-related problems that the organisations have or might have in the near future.

**Acknowledgements**

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References


Appendix I: Questions asked to the project managers of the six organisations.

Criteria for employment
What kind of skills are you looking for?

Training
What kind of training does your organisation offer?
How long is the training?
How does the monitoring system take place?

Criteria to clear a target area
How do you choose an area to be cleared?

Costs
How does your organisation characterises the levels of infestations?
How much does it cost to clear one hectare of
light
medium
dense infestations
What other factors influence cost efficiency?
Appendix II: Questions asked to the workers in five organisations

Do you experience work-related problems in your team?

Do you experience problems in relating to colleagues?

Do you experience problems in relating to superiors?
What kind of problems do you experience in your work?

What do you like most about working in this organisation?
What do you like least about working in this organisation?
Do you enjoy your present work?

Why?

How well does each of the following words/phrases describe the following:

**Work on present job**
Routine
Satisfying
Good

**Present pay**
Income adequate for normal expenses
Insecure
Less than I deserve

**Supervision**
Impolite
Praises good work
Doesn't supervise enough