

# **Annex 4**

## **WORKING PAPER on**

# **Proposal for a Zambian Assured Produce Scheme**

**June 2006**

**Prepared  
For the World Bank**

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## Chapter One

# INTRODUCTION

### 1.1 Background

In March 2006, the World Bank initiated an SPS needs assessment in Zambia. This mission identified a number of opportunities where SPS and Standards issues might be constraining international trade, either now or in the future. Also, it was noted that the emerging supermarket, tourism and hotel/restaurant sectors were rapidly expanding and demanding increasing amounts of locally grown and processed produce. These buyers generally claimed that they were doing their utmost to ensure food safety standards, but there was no formal standard for the farmers to adhere to. Therefore, as part of a second mission for the SPS needs assessment, the opportunity to establish a system within Zambia to improve the quality and traceability of locally grown produce was evaluated. The acronym given to this system is ZAPS – Zambian Assured Produce Scheme.

The background research and interviews for ZAPS took place between 16 and 30 May 2006<sup>1</sup>. This Working Paper describes the vision for ZAPS, estimates the cost of establishing the scheme and training the farmers (and their staff) and suggests a method for implementing and maintaining the scheme.

### 1.2 Comparison of exports and the local “high-quality” horticultural markets

The status of horticultural exports was reviewed in the first mission. The value of exports peaked at almost USD 27 million in 2002 and fell to just below USD 17 million in 2005 (Table 1.1). The decline in value of exports is expected to continue in 2006 as the exporters cut back production as a consequence of the revaluation of the Kwacha; it is expected that the value of exports in 2006 will be much less than USD 15 million. Unless there is a significant devaluation in the Zambia kwacha, it is expected that horticultural exports will decline even further.

**Table 1.1 C&F values and weight of horticultural and floricultural exports, 1999 to 2005**

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<sup>1</sup> The research and interviews for establishing ZAPS was undertaken by Dr Andrew Sergeant of Accord Associates, who worked with the SPS Mission Leader, Dr Steven Jaffee of the World Bank’s International Trade Department.

	1999	2000	2001	2002	2003	2004	2005
<b>a) Value of exports (USD'000/year)</b>							
<b>Horticulture</b>	20,020	17,541	23,272	26,780	25,910	18,145	16,791
<b>Floriculture</b>	42,607	33,863	28,957	30,844	26,603	29,825	34,352
<b>Total</b>	62,627	51,404	52,230	57,624	52,514	47,970	51,142
<b>b) Weight of exports (tons/year)</b>							
<b>Horticulture</b>	5,005	4,874	7,884	8,485	8,330	6,238	5,784
<b>Floriculture</b>	3,424	3,468	3,764	4,379	3,762	3,995	4,275
<b>Total</b>	8,428	8,342	11,648	12,864	12,092	10,233	10,060

Source - ZEGA

The first mission estimated that the value of the horticultural produce purchased by the larger supermarkets, hotels and tourist lodges was similar to the value of exports – about USD 15 million. This estimate was confirmed by the 2004 household survey, which estimated that the value of the “top-end” of the horticultural market was approximately USD 16 million. In comparison, the indications are that the demand by the top-end of the market increases as the number of supermarkets increases<sup>2</sup> and the number of tourists and visitors to Zambia increases<sup>3</sup>.

There are also many more farmers supplying the high-end local horticultural markets. In the mid-1980s, Zambia started exporting vegetables to Europe. Initially the trade targeted wholesale markets and has developed into supplying the major EU supermarkets – and meeting the stringent standards they set. Currently, there are three main exporters, York Farm, Chalimbana Fresh Produce, and Borassus, who produce their crops on large commercial farms that have been EurepGAP certified. There have been attempts to develop exports from small-farmers. One company, Agriflora, established small-farmer schemes to grow export crops and the farmers were in the process of becoming EurepGAP certified. However, in 2004, Agriflora went into administration and York Farm took on the responsibility of exporting from some of the small-farmers. In late 2005, the exchange rate between the Zambian Kwacha and the USD changed significantly, with the Kwacha strengthening from ZMK 4,750 to ZMK 3,300 to the USD. This had a very major impact on the viability of horticultural exports. As a result, the exporters had to cut back many of their product lines and York Farm curtailed their procurement from small-farmers. Therefore, the impetus for small-farmers to attain EurepGAP diminished and it is very unlikely that many of the small-farmers will become established exporters to Europe.

It is difficult to estimate the number of farmers supplying the high end of the retail market but it is probably between 100 and 300 farmers. The buyers need regular supply of good quality produce and therefore the buyers tend to buy from farmers who have sufficient land and resources to have sequential plantings. In other words, the farmers whom they buy from are classed as either emergent or small-scale commercial farmers,

<sup>2</sup> For example, the South African chain, Spar, hopes to expand its outlets from 3 to 12 within the next three years.

<sup>3</sup> The Tourist Council of Zambia expects the number of arrivals to increase from about 650,000/year to one million by 2010.

who generally have five or more hectares and have sufficient resources to be able to invest in good quality seed, agrochemicals and even irrigation equipment. Even though the buyers claim that they are trying to supervise their fresh produce suppliers, they are not able to devote any significant resources to ensure that even minimum standards in food safety and traceability are achieved. The buyers try to instruct the farmers in the basics of good agricultural practice. However, neither the buyers nor the farmers have the resources or expertise to actually teach the supervisors and farm-workers the principles of good agricultural practices and simple food safety practices. Therefore, this Working Paper describes the opportunity for developing ZAPS, which is specifically designed for farmers supplying the high-end of the local horticultural market. **It is important to stress that ZAPS will be developed and driven forward by the main supermarkets and other “high-end market buyers” and it would be a voluntary scheme.**

### **1.3 Acknowledgements**

The consultants are pleased to acknowledge a debt of gratitude to many people in Zambia, who contributed their time and opinions freely to assist with this assignment. In particular, they are especially grateful to have the opportunity to thank the following people who gave exceptional assistance, in particular Bob Bush and Glenn Humphries of the NRDC/ZEGA Training Trust, Willie Minnie of Freshmark Zambia and staff of hotels and restaurants in and around Lusaka. The support and constructive advice of both Scott Simons and Mupelwa Sichilima of the MATEP project were particularly valuable.

## Chapter Two

### DESCRIPTION OF ZAPS

#### 2.1 The need for assured produce schemes

The impetus for schemes to establish minimum standards for farmers to adhere to started in Europe where the major retailers needed to prove “due diligence”, in other words, they need to demonstrate that they are only sold produce that has been produced and processed in a safe fashion. In recent years, a number of schemes have been established, eg, the Assured Produce Scheme in the UK, then EurepGAP and now many of the major retailers have their own standards such as Tesco’s Nature’s Choice. These standards cover a number of issues, eg the safe application and timely use of pesticides, health and safety on-farm standards, risk analysis and risk prevention for the purpose of food safety, product traceability as well as care for the environment and the social conditions and welfare of the farm workforce.

The most high profile scheme for supplying the European market is EurepGAP. It has been very successful in being adopted as the basic standard for exporters. It must be noted that this scheme has taken almost 10 years to evolve<sup>4</sup>, but is now a minimum required by many of the North European retailers – and indeed, it is being widely demanded by the supermarket chains in South Africa. **It must be appreciated that EurepGAP is not a legal requirement for exports to the EU, but a code established and required by the private sector.** In many aspects, the standards set by EurepGAP are higher than demanded by EU import legislation; for example, the maximum pesticide residue limits allowed are lower under EurepGAP than EU legislation.

It is extremely costly for farmers initially to become EurepGAP certified and then there is an on-going expense for the farm to be audited each year. A recent study undertaken by the Natural Resource Institute (NRI) in Zambia calculated that if small-farmers have to bear all the cost of certification, then it would be impossible for them to make a profit from exporting to Europe<sup>5</sup>.

It is proposed that the ZAPS standard would not be as wide-ranging or as intense as EurepGAP, but would focus on a limited number of areas that could be cost-effectively adopted by smaller-farmers. The objective of establishing ZAPS is to help farmers improve their agricultural practices to a level that is more in keeping with the demands of the local market. The establishment of ZAPS would reassure the end-consumer and retailer that the produce had been grown in a safe manner and that the farmer had respected the environment. However, once ZAPS was established and farmers had

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<sup>4</sup> EurepGAP was introduced in 1997.

<sup>5</sup> This study was financed by the United Kingdom’s Department for International Development.

started to recognize the benefit of improved agricultural practices, as with other schemes, there would be an opportunity to broaden the scope of the scheme.<sup>6</sup> ZAPS would focus on three main areas –

- **Safe and timely application and storage of pesticides.** This would reduce the chance of pesticide residues on the crop as the farmer would strictly adhere to the interval between application of the pesticide and harvest. Improved instructions to farm staff will reduce any health risks to the operatives. There would also be training on the safe storage of pesticides and the disposal of empty containers, selection of safe and appropriate pesticide products and the use of appropriate protective clothing. Farmers will also be guided on when spraying is necessary and when alternative controls are more appropriate.
- **Basic food safety.** This would concentrate on ensuring that the farm workers understood basic food health and hygiene standards, reduction in contamination etc. In order to ensure the safety of produce, it is important that water used for irrigation and provision of adequate toilet and hand wash facilities on site.
- **Record keeping.** This would probably take the form of a diary of all field activities – and would be the foundation for capturing data for crop records. Farm codes and field labels would also be introduced to facilitate traceability of the product.

It is expected that the retailers will organize for some samples of produce to be tested for pesticide residues – these samples could be sent to South Africa for analysis<sup>7</sup>.

## 2.2 Who benefits from ZAPS?

Once ZAPS is established, the end-consumer, the retailers and tourist industry, farmers and farmer workers all benefit. The end-consumer benefits because

- They have greater assurance about lack of pesticide residues and harmful organisms on the product and that it has been produced and handled in a hygienic manner.

The retailers and restaurants/hotels/tourist industry benefit because

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<sup>6</sup> EurepGAP and other schemes do continually evolve and become broader and set higher standards; the standards that are currently set are difficult and costly for small and medium-sized farmers to achieve. Therefore, one of the objectives of ZAPS is that it is a first step towards attaining international standards – without having to make the very significant investment needed for international accreditation.

<sup>7</sup> To meet EurepGAP standards, the importer has to arrange for one sample per year of the produce to be tested for pesticide levels. The exporter ensures that maximum pesticide levels are not exceeded by strictly adhering to the recommended post-harvest intervals for pesticides. If the Zambian farmers keep to the recommended products for the specific crop and adhere to the instructions, then there should not be an issue with residue levels. However, if samples were analysed, it would help reinforce the importance of correct pesticide application to the farmers and would also reassure the consumer that the produce was safe.

- They are able to market the produce as being safer, and if there is a problem, then they can prove that they put in place sensible training and traceability schemes in an attempt to minimize the risk of any health issues.
- It would reduce the chances of customers suffering from food poisoning and any subsequent bad publicity.

The farm workers benefit because

- They will be taught to apply pesticides in a safer manner and will work in a healthier environment.
- It has also been noted that when farm staff are taught better food hygiene standards, they are then applied in their own homes!

The farmer should benefit because

- The better record keeping will help considerably with understanding profitability and a reduction in costs.
- Achieving ZAPS certification would help achieve “preferred supplier status”, which would help secure their markets. Also, once preferred supplier status has been achieved, it could lead to regular contracts at stable and agreed prices<sup>8</sup>.
- The good agricultural practices that would be taught for the high-end market horticultural crops could be applied to other enterprises – which would in turn improve their profitability and secure markets<sup>9</sup>.
- Achieving ZAPS certification would make it easier to achieve the standards needed for export. For example, the supermarkets in South Africa require a higher standard of fresh produce than currently being demanded in Zambia. Once a farmer has achieved ZAPS certification, it would require fewer resources and less effort to meet the South African standards<sup>10</sup>.

In addition to the above beneficiaries, the introduction of good agricultural practices would help ensure that more care was taken of the farm environment, i.e. there would be

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<sup>8</sup> The LACCU, a cooperative of small-farmers near Lusaka cite the reason they have attempted to gain EurepGAP certification is that the export market offers more stable prices and guaranteed regular incomes. In reality, being EurepGAP does not facilitate contracts or guaranteed prices because these are rarely offered by the importer – the relationship is built on trust and good communications - but certification does encourage buyers to take a supplier much more seriously.

<sup>9</sup> It is interesting to report that South African farmers that have certification to supply supermarkets used this standard to gain higher prices in their traditional markets.

<sup>10</sup> In the longer-term it might be possible to adopt different standards for different markets. For example, Mauritius has established three standards for its farmers – gold, silver and bronze. The lowest level is for the traditional local market, the middle standard for the high-end local market and the gold has been developed to meet export standards. It is not suggested that Zambia adopts any more than one standard at the moment, but perhaps in time if there is sufficient demand.

a reduction in the use of pesticides. It is recognized that these efforts at improving food standards are only targeted at the high-end of the horticultural market. However, it is hoped that in time some of the farmers supplying traditional outlets will start to take up some of the improved practices. It is very important that the standards of food safety for all consumers are improved. The reason for starting at the higher end of the market is because it will be much easier to implement, and once standards have been set, then there could be a “trickle down” effect as better agricultural practices are taken up by more farmers. The main retailers have been very much in the driving seat in establishing standards in Europe – and it is logical that the retailers in Zambia would also be the catalyst for establishing ZAPS.

In the short-term, it is recognized that only a few farmers will benefit from ZAPS certification – because there are probably only around 200 to 300 farmers supplying the high-class end of the horticultural market. However, once ZAPS has been established, it is likely that it will get adopted by other food crops, the principles could be developed for other food crops – for example, paprika, coffee, tea and organic production. This would involve many more farmers.

### **2.3 The main drivers for establishing and maintaining ZAPS**

It must be stressed that ZAPS will be a voluntary scheme and it would be “driven” by the main retailers, hotels and restaurants as well as the catering and tourist industries. Some of the main potential drivers were interviewed and, without exception, offered to give their support to the introduction of the Scheme to improve standards of food safety. It is envisaged that some of these “drivers” would be in the forefront of establishing and maintaining ZAPS. These drivers include

- **Shoprite** – Currently this South African chain is the largest supermarket chain in Zambia operating 18 stores throughout the country. It obtains most of its horticultural requirements via a wholly-owned subsidiary, Freshmark. Some of the outlying stores, eg at Chipata, buy some of their fruit and vegetables direct from growers. Shoprite expects that Freshmark will do its utmost to ensure the standards and quality it supplies. Shoprite also claims that at about 90% of the vegetables it sells are grown locally, but most of the fruit is imported from South Africa.
- **Spar** – Spar has three stores, but will be opening two more towards the end of 2006 – and it has plans to reach 12 within the medium-term. Currently, the three stores purchase their horticultural produce either direct from farmers or from Fruit and Veg City. As with Shoprite, Spa note that most of their vegetable requirements are grown in Zambia, but most of the fruit has to be imported.
- **Freshmark** – As the procurement agency for Shoprite and some of the main hotels, it is probably the single biggest purchaser of fruit and

vegetables in Zambia. It is estimated that it buys about USD 5 million of locally grown horticultural product. It does some pre-packing for Shoprite and has a range of prepared products<sup>11</sup>. Freshmark's main depot in Zambia is in Lusaka, but it has a smaller one on the Copperbelt. It estimates that it buys from about 70 to 75 farmers, but has about 30 preferred suppliers; the preferred suppliers are the larger and more reliable farmers. It claims that it tries to develop planting programmers with farmers to ensure a consistent supply and it aims to pay slightly above market price to get the better quality product. Freshmark eventually want to try to introduce some of the standards that they demand of their South African farmers – but note that these could be superseded by ZAPS.

- **Fruit and Veg City** – Fruit and Veg City is a smaller buyer of fruit and vegetables than Freshmark. Its main customers are the Spa supermarket chain and some of the hotels.
- **The main hotels** – The main hotels either buy their produce directly from the farmers or through an intermediary such as Freshmark or Fruit and Veg City. The procurement staff in the hotels claim that they visited the farmers that supplied them to ensure quality, but it is not apparent what skills they had to ensure that the farmers were adopting appropriate practices to ensure quality.
- **The Tourist Council of Zambia** – The tourist and hotel industries noted that there were very few instances of food safety affecting guests. However, it is important that Zambia's tourist industry ensures that this trend continues.
- **Processors** – it is recognized that Zambia has only very limited potential for processing horticultural produce. There is some potential for adding-value by “slicing and dicing” of fresh produce – but this will almost certainly be confined to the main retail outlets and hotels and restaurants and would be covered above. However, there are two Lusaka-based companies that buy fruit and vegetables for processing, Rivonia and Freshpick. In many countries, processors demand that their suppliers can demonstrate accreditation to a scheme to assure traceability and food safety standards. It is possible in the future that if these companies want to develop export markets or secure their local market, they might want to adopt ZAPS.
- **British Airways and other airlines** – Currently British Airways (BA) uses food prepared in London for the meals on the flight from Lusaka to Heathrow. This means that it has to be carried out to Lusaka, which takes up valuable cargo capacity. If BA obtained meals prepared in Zambia, it

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<sup>11</sup> For example, fresh mixed salad packs.

would release an airline pallet on both the inward and outward journeys – which could be used to carry revenue-generating cargo. In 2005, BA experimented using one of the Lusaka hotels to prepare in-flight meals. In total, the meals for 17 journeys were prepared in Lusaka – using about 80% locally produced food. The results of this experiment were reasonably satisfactory; the main concerns were the need for improved monitoring and record keeping in the kitchen, an appropriate system of record keeping and traceability for the “farm to kitchen” and an accredited laboratory that could be used to undertake bacterial analysis. If these issues could be addressed, then it would greatly improve the revenues for airlines flying out of Lusaka.

## 2.4 Who pays to install ZAPS?

One of the crucial issues for the success of ZAPS will be how it is financed. In the case of EurepGAP, the farmer or exporter has to pay<sup>12</sup>; it is regarded as a cost of entering the market, because, without the certification, it is not possible to sell to the EU retailers<sup>13</sup>. Therefore, the farmer has to calculate the cost and benefits of becoming certified. In the long-term it might be the same in Zambia when there are sufficient farmers with ZAPS certification competing to supply the high-end of the horticultural market. However, this will only occur when it has been shown that supplying this market is more profitable than other markets. However, until the standards are more widely adopted, it is proposed that funds from the World Bank’s Agricultural Development Support Project (ADSP) would be used to support the establishment of ZAPS and to train farmers. After the scheme has become established, some of the costs would come from the farmers or retailers. It should be noted that once the scheme is established, farmers will benefit not only from a more secure market, but costs will decrease<sup>14</sup> and the information collected will facilitate better management decisions<sup>15</sup>. The training of supervisors and management will also lead to improved productivity and help create a safer environment.

The actual cost of ZAPS compliance and the support from the ADSP are discussed in more detail in the next Chapter. However, the question of who really pays should be understood. In the case of EurepGAP, the farmer or exporter has to pay for achieving certification – unless donors make a contribution<sup>16</sup>. However, it can be argued that in

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<sup>12</sup> Or in the case of many small-farmers in Africa, a donor actually pays.

<sup>13</sup> In most businesses, it is incumbent on the supplier to ensure that all safety standards demanded by the buyer are met. For example, car manufacturers have to build in seat belts and other safety devices and if they do meet these standards, they are unable to sell their vehicles.

<sup>14</sup> For example, the record keeping in the agro-chemical storage sometimes helps farmers reduce theft.

<sup>15</sup> The improved record keeping makes the calculation of more accurate crop gross margins.

<sup>16</sup> The EU’s PIP (Pesticide Initiative Programme) has made funds available to exporters and farmers to reach EurepGAP standards. Also, a number of NGOs and other donors have given money to train small-farmers to reach EurepGAP standards. Indeed, JIKA helped fund the infrastructure, DFID financed the training and development of systems and manuals, PSDP supported the training of local auditors which has all contributed to the small-farmers supplying Agriflora and then York Farm to try to reach EurepGAP certification. These small-farmers were part of cooperatives and the NZTT developed specific training schedules and standards to enable the cooperatives to become certified. These cooperatives have almost

reality, the full cost of achieving compliance is either passed back to the farmer or forward to the end-customer. The retailer, or another market intermediary, will sometimes carry the cost, but, in effect, it will be reclaimed either by the farmer being offered lower prices or the end-consumer being charged more.

## **2.5 The role of the NRDC/ZEGA Training Trust (NZTT) in the implementation of ZAPS**

NZTT has an important role to play in establishing ZAPS. The genesis of the NZTT was in 1995 when the Zambia Export Growers Association (ZEGA) commissioned a training needs assessment for the horticultural and floricultural industry. It identified as priorities a need for full and part-time training courses for potential supervisors and management for the horticultural and floricultural industry, as well as on-farm training courses. Between 1996 and 1998, over 100 students were trained as supervisors and a further 200 were trained in the safe and effective use of pesticides. Following this success, ZEGA members decided to establish the NRDC/ZEGA Training Trust (NZTT) in November 1998 to provide horticultural and floricultural training in Zambia. NZTT is an independent organization directed by a Board of Trustees representing both the Government and the Private Sector. It is located just outside Lusaka on the Great East Road on the site of the Natural Resources Development College (NRDC), a Government institution. Since 1998, it has been running vocational courses for students as well as helping ZEGA members meet the changing demands for internationally recognized standards and Codes of Practice. It is still supported by ZEGA members as well as by funding from various donors, especially the Dutch and Norwegian Governments, and is regulated by the Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA), and has been awarded the status of a Grade 1 training organization.

In 2000, ZEGA instigated its own Code of Practice to cover the areas of Good Agricultural Practice (GAP) and protection of the environment, human resource management and welfare of employees, vegetable and flower quality assurance and relationships with outgrowers. This Code contributes to the promotion and protection of the reputation of Zambia in the international market place. The NZTT played a central part in the development of the ZEGA Code and is responsible for auditing compliance by the ZEGA membership. The Trust has also participated in the preparation of other regionally based Codes, including a Code for Small-Farmer Service Providers and the COLEACP-harmonized framework for Codes of Practice in Southern and Eastern Africa, and has provided training for auditors from the region. More recently, it has developed the procedures for helping groups of small-farmers become EurepGAP certified and has been responsible for installing the appropriate systems and for training the farmer groups. NZTT is therefore in a unique position of having worked on interpreting horticultural standards and developing training programmers and materials for Zambian small-farmers. Given its background and status within Zambia, it is therefore recommended that the

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achieved the necessary standards – however, the problems with Agriflora going into receivership and the revaluation of the kwacha has delayed these cooperatives achieving full EurepGAP certification.

NZTT should play a prominent role in the introduction and establishment of ZAPS as well as the training of farmers. The Trust would also be responsible for auditing the farmers.

Currently, NZTT have five auditors trained to internally audit EurepGAP and two members of staff with the ISO Lead Auditor qualification. These trainers and auditors would not require much extra training to be able to work on ZAPS. It is also important to note that NZTT have a big enough team to be able to split the training and auditing functions, which give a significant degree of independence.

## **2.6 The ZAPS Council**

It is recommended that a Council be established to oversee ZAPS. The Council would be drawn from the main stakeholders and would ensure that the ZAPS standards are maintained and adjusted where necessary. The Council would take responsibility for directing the management and overseeing the operational issues relating to the implementation of ZAPS and would also ensure integrity of the training and accreditation provided by NZTT.

It is not the intention of this report to recommend the exact constitution of the Council – this would be done during the first phase of establishing ZAPS. However, it is suggested that the Council could consist of the following

- At least three representatives from the major retailers (eg Shoprite, Spa or the smaller, independent supermarkets) or the companies that supply them (eg, Freshmark, Fruit and Veg City).
- A representative from either the Hotel Association or the Tourist Council of Zambia.
- One farmer representative, probably through the Zambia National Farmers' Union (ZNFU).
- One representative from ZEGA. Even though ZAPS is specifically designed for the internal Zambian market, ZEGA's experience of international standards could be very useful.
- One representative from NZTT.
- One representative from the Agrochemical Association of Zambia.
- One representative from Government – who would probably come from either the Zambia Agricultural Research Institute (ZARI) or probably more specifically, the Plant Quarantine and Plant Services department within ZARI.

The establishment of the Council and enthusiasm of the participants will be fundamental to the success of ZAPS. It is important that the main retailers, hotels and fresh produce buyers work together to establish the standards. The individual retailers could implement their own standards, but this would not have as wide-ranging an effect on the farming

population as a national Scheme<sup>17</sup>. Also, as a nationwide standard, it is more likely that it will eventually trickle down to many more farmers. Without doubt, the most important Council representatives will be the major retailers: all the other Council representatives will be important, but the longer-term success of ZAPS will depend on the major retailers taking an active role in cooperating to develop the Scheme. If the retailers successfully drive the Scheme forward, it should start to open up a wider range of local market opportunities for farmers, and possibly even export.

## **2.7 The implementation plan**

**a) The first stage – the development of manuals and training programmers.** The first step in establishing ZAPS would be the establishment of manuals that would define the standards for a range of horticultural crops. The NZTT has considerable experience of developing standards, manuals and training schedules for Zambian farmers. It is therefore recommended that they be commissioned to develop these. Also, at this initial stage, it would be important for NZTT to undertake a baseline survey to understand the level of competence of the farmers already supplying the high-end of the horticultural market. During this first stage, NZTT would also call at least two meetings of the Council; the first would be to agree the establishment of ZAPS and the second would be to discuss the proposed standards and farmer-training program developed by NZTT. It is assumed that NZTT would work closely with the retailers in the production of the manuals so their requirements could be incorporated.

As noted above, ZAPS would concentrate on the safe and timely application and storage of pesticides, basic food safety and record keeping. A training program would be designed for each of these areas and the system of record keeping would be developed for all the farmers involved with ZAPS. The training would be for management, supervisors and, in the case of pesticide application, operatives.

**b) The second stage – the training of farmers and their staff.** The training for a farmer to become ZAPS-certified would require a number of initiatives, as follows

- Initial briefing meeting for farmers to introduce ZAPS.
- An initial farm visit to establish the baseline and identify any issues that have to be addressed.
- At least two sprayer operatives per farm would need to attend NZTT for a 3-day course for instruction in the safe application of pesticides<sup>18</sup>.

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<sup>17</sup> Another advantage of a National Scheme will be that it should be easier to obtain “donor resources”, which will allow more smaller-farmers to participate. The larger and more commercial-farmers have more resources to achieve certification and could eventually dominate supply to the major retailers at the expense of the smaller-farmers.

<sup>18</sup> NZTT already has courses suitable for pesticide training; its trainers have been trained by GH, PIP and Crop Life International. And will soon have BASIS certification. The Zambian Agrochemical Association need to be involved in safe and appropriate pesticide product selection as well as their supply in correctly labelled containers of an appropriate size.

- The owner or senior farm-manager would attend a one-day course on food-safety, contamination and general food hygiene measures.
- At least one, and possibly two, supervisors would attend a 4-day course on food safety, contamination and general food hygiene measures. The supervisors would also be taught how to train farm staff in these areas and would be given specific teaching aids.
- At least two people from each farm would receive a day's training on record keeping – focusing on recording field activities and maintaining agrochemical stock keeping, and maintaining a safe agrochemical store.
- Implementation of training needs to be supported with farm visits during this period; it is suggested that two or three visits per farm would be necessary. Experience with EurepGAP training has shown that without these visits, the auditor will arrive to do the first audit and find that many of the procedures have not been introduced and that advice is needed to adapt these procedures into the farming framework. These visits also prevent unnecessary expenditure by the farmers who may be did not understand fully at the training. Using a lead farmer and holding farmer meeting to share good practice is also an effective way of supporting the implementation phase.

**c) The third stage – auditing the farm to check if the standards are being maintained.** After the completion of the second stage, a representative from NZTT would visit each farm to audit whether the lessons learnt during the second phase were being implemented. This audit could also suggest other improvements that might need to be made.

**d) The fourth stage – on-going audits.** Even when a farmer has successfully been ZAPS certified, it will be necessary for an **annual** audit to ensure that standards are being maintained. If trained staff have left the farm, it might be necessary for other management/supervisors or operatives to receive training.

## **2.8 Geographical locations**

It is assumed that ZAPS will be adopted by farms near to Lusaka. The training sessions could therefore be held at NZTT. When the Scheme has successfully been developed around Lusaka, it should then be made available to farmers in other localities. For example, it is reported that groups of small-farmers near to Livingstone and Chipata have recognized that there is a good market to supply the tourist industries at both Victoria Falls and the Luangwa Valley and they are starting to supply these opportunities. In addition, Freshmark are obtaining some of their produce from the Copperbelt – and as they expand, they expect to obtain more produce from this Province. Therefore, there should be a demand for ZAPS certification in Southern, Eastern and Copperbelt Provinces. Obviously, it would be necessary to identify another training centre for the courses to be given away from Lusaka – but this is not expected to be an issue. The NZTT could easily send trainers and auditors to Livingstone, Chipata and the Copperbelt for one or two weeks' intensive training.

The location for training does not present a problem provided there are several farmers to give the training economy of scale. The NZTT staff is mobile and training materials are already designed for use in the 'field'. One of the aims of the more distant training would be to train a local person who would provide on-going support between training visits.

## Chapter Three

# THE ESTIMATED COST OF ESTABLISHING AND MAINTAINING ZAPS

### 3.1 The costs of each stage

a) **The first stage – the development of manuals and training programmers.** By using the services of NZTT, it will be much easier to prepare the manuals and develop the necessary training programmers. It has trainers who have appropriate training skills and training aids and who are experienced in working with small-farmers and who have used training aids. However, in order to refine the manuals and training programmers, it will be necessary to undertake a baseline survey of some of the farmers who are already supplying the high-end horticultural market and some that are hoping to start producing for the major retailers. A survey of about 30 farmers should be sufficient to understand the needs requirements of the farmers<sup>19</sup>.

In this first stage, NZTT would organize a meeting of the main stakeholders and farmer representatives with a view to establishing and electing a Council as described in Section 2.6.

The inputs needed for this first stage would be two man-months of an international expert and one man-month of staff already employed at NZTT. It is estimated that the total cost of this first phase would be USD 55,000 (Table 3.1).

**Table 3.1 Estimated cost of first stage of establishing ZAPS**

	<b>Input</b>	<b>Unit cost</b>	<b>Total cost</b>
Int. consultancy time	2 man-months	\$ 25,000	\$ 50,000
NZTT staff	1 man-month	\$ 3,750	\$ 3,750
Contingences			\$ 1,250
<b>Total</b>			<b>\$ 55,000</b>

*Note – It is assumed that NZTT staff are costed at USD 100/day, an allowance of USD 50/day has been added to cover transport, consumables etc.*

<sup>19</sup> It is envisaged that NZTT would work with two or three of the main retailers, fresh produce buyers or hotels to identify about 30 current and about 5 potential suppliers of fresh produce. These would be appraised - and it is imagined that they would form the basis of the first farmers to be given ZAPS certification.

**b) The second stage – the training of farmers and their staff.** Assuming that the Council has been formed and there is sufficient enthusiasm from the farmers and buyers of high-quality produce, the first batch of farmers and their staff would be trained. The farmers would be selected during the baseline survey in the first phase. It is envisaged that 25 farmers would be trained at a time and that virtually all of the training would be done by staff already employed by NZTT<sup>20</sup>. The budget for the training is calculated as follows

- The initial farm visit would take about 1.5 to 2 hours – and it is assumed that three farmers could be surveyed per day.
- The sprayer operatives (2 per farm) would participate in a 3-day theoretical and practical course; there would be 10 operatives per course and there would be two NZTT staff running the course.
- The owner, or senior farm-manager, of each farm would attend a one-day course on food safety, contamination and general food hygiene measures. It is assumed that there would be 12 or 13 farmers/mangers per course and there would be two NZTT staff teaching the course.
- The main supervisors on each farm would attend a 4-day course on food safety, contamination and general food hygiene measures. There would be up to 10 supervisors attending each course and there would be two NZTT staff giving the training.
- At least two people from each farm would receive a day’s training on record keeping. Again there would be up to 10 attendees at each course and there would be two NZTT staff in attendance.

**c) The third stage – the first farm audit.** After the completion of the second stage, it is assumed that an NZTT staff member would visit each farm to ensure that the lessons learnt from the training courses were being applied. It is assumed that the auditor would require three hours per farm and two audits per day would be undertaken.

It is estimated that it would cost USD 20,000 to train 25 farmers to reach ZAPS standards – or USD 800 per farmer (Table 3.2).

**Table 3.2 Estimated cost of training 25 farmers to the ZAPS standard**

	<b>Input</b>	<b>Unit cost</b>	<b>Total cost</b>
Initial farm visit	8 man-days	\$ 150	\$ 1,200
Sprayer operative course	30 man-days	\$ 150	\$ 4,500
Food safety course (a)	4 man-days	\$ 150	\$ 600
Food safety course (b)	24 man-days	\$ 150	\$ 3,600
Record keeping	10 man-days	\$ 150	\$ 1,500

<sup>20</sup> It is hoped that they might also make of the expertise / services of the members of the Agro-chemical Association of Zambia. This will be important to get “buy in” to the idea of “approved product lists”.

Farm visits (3)	25 man-days	\$ 150	\$ 3,750
Audit	13 man-days	\$ 150	\$ 1,950
Contingences			\$ 2,900
<b>Total</b>			<b>\$ 15,000</b>

*Note – It is assumed that NZTT staff are costed at USD 100/day, an allowance of USD 50/day has been added to cover transport, consumables etc.*

**d) The fourth stage – on-going audits.** It is assumed that the annual audit would require three hours of NZTT staff time – and occasionally a second visit would be required to ensure that any defects have been corrected. An allowance has been made for two farmer audits per day – and this would cost USD 75/year for each farmer to be audited. It is likely that some of the farmers would occasionally have to send some members of staff for further training if key workers have left.

**e) The total costs of achieving ZAPS compliance.** It is estimated that it would cost USD 55,000 to do the initial work to establish the basis for ZAPS and then a further USD 20,000 per 25 farmers. The target would be to train one group of 25 farmers in the first year and another batch of 25 in the second year. Therefore, the total cost of establishing ZAPS and training the first 50 farmers would be USD 95,000.

It is anticipated that, after the first two groups have been trained, there would need to be a review to evaluate the standards that have been established and to calculate the benefits to the farmers and retailers of this program. This could be done by the management of NZTT, or external consultants selected by the ZAPS Council could undertake the work – an allowance of USD 15,000 should be made for this.

### **3.2 World Bank support**

One of the components of the World Bank’s ADSP grant to the Zambian MOAC is an allocation of funds to support ZARI. This money was requested to improve the service offered by the PQPS department in helping farmers and exporters meet SPS and other standards. It is therefore recommended that the cost of establishing ZAPS (USD 55,000) and the training of the first 50 farmers (USD 40,000) be funded from this component of the ADSP grant. In addition, a further USD 15,000 should be allocated for a 2-week review by international consultants to review the concepts and evaluate the benefits of farmers achieving ZAPS certification. Therefore, the total cost of trialing and evaluating ZAPS should not exceed USD 110,000. It must be stressed that the investment in developing the principles of ZAPS could then easily be adapted to other food crops being grown by small-scale commercial farmers, such as paprika, coffee, tea which would involve many more farmers<sup>21</sup>. The concept would also be useful where record-keeping is essential – such as organic or fair-trade crops. Some of the principles could also be adapted and taught to market intermediaries who would then pass them on to farmers.

<sup>21</sup> It is estimated that 5,000 farmers are growing paprika.

Assuming that evaluation of ZAPS is positive, part of the cost of training more farmers could come from another component of the ADSP grant. There is an allocation of resources for a matching grant facility, where up to 75% of the cost of training farmers to improve productivity and quality can be claimed back. The training of farmers to reach ZAPS standards should meet the eligibility criteria. Therefore, after the initial period when the ZAPS certification is being trialed and refined and it is recommended that the farmers be trained for nothing, the expense of training more farmers should not exceed USD 200/farmer. At a later stage, when the ADSP funding is finished, farmers may then have to bear the entire cost of training, but by then it is confidently expected that the benefits of being ZAPS certified would significantly outweigh the full costs.

### **3.3 Contributions from the beneficiaries**

It is expected that once ZAPS has become established, other stakeholders will also make contributions to its maintenance. For example, the Council members will be expected to attend meetings at their own expense – and also some of the buyers and retailers will pay for the pesticide analysis of product and the testing of irrigation water.

After the ADSP funding stops, it is hoped that some market intermediaries will help finance smaller-farmers to become certified. It is understood that this will improve their supply base and the extra competition could lead to slightly lower farm-gate prices.

### **3.4 Risks and issues**

There are some risks and issues with establishing ZAPS.

- Despite the assurances that were given during the mission, the buyers may not agree to help establish the Council and may not support the Scheme. If this happens, the downside is that the initial outlay of USD 55,000 for the preparation of the manuals and the baseline assessment will be partly wasted. However, the manuals will be in the public domain and may be used in the future.
- It is possible that some of the main retailers may establish their own standard. However, this would not be sensible as it means that the retailer is not able to access as much support from the ADSP.
- The decline in the horticultural export industry may reduce the resources available through ZEGA members to the NZTT. This could then lead to the staff being demotivated and the quality of training may subsequently suffer. However, the work opportunities and revenue that would come from the introduction of ZAPS could in reality help negate the effects of the decline of horticultural exports and will contribute to developing and maintaining a local pool of expertise in training and implementing local standards.

### **3.5 Opportunities and benefits**

In contrast to the above risks and issues, there are some distinct benefits to establishing ZAPS. These include

- The established and well-respected resources at NZTT give considerable impetus to establishing ZAPS. NZTT is unique within Zambia and is able to offer the resources to establish ZAPS and has the staff to cost-effectively train the farmers.
- If the kwacha/USD exchange rate changes to make horticultural exports more attractive, then there will be a small cadre of farmers who have started the process of achieving standards and who will therefore be in a better position to reach the EurepGAP standards.
- By having ZAPS accreditation, it could eventually lead to increased regional export opportunities.
- When farmers get ZAPS certification, it will improve and secure their farm income, which will help secure the jobs of their workforce. It will ensure that the farm-staff work in a healthier environment.
- The end-buyers will be purchasing safer food with reduced chances of food poisoning.
- The introduction of good agricultural practices will help preserve the environment by encouraging safer use of more appropriate chemicals.
- Other farmers will see the benefit of good agricultural practices – and will probably adopt some of them on their farms.