11 Annexure B – The Study Terms of Reference

FUND FOR RESEARCH INTO INDUSTRIAL DEVELOPMENT, GROWTH AND EQUITY

TERMS OF REFERENCE FOR A STUDY TO EXAMINE THE ECONOMIC IMPACT OF THE PROPOSED PLASTIC BAG REGULATIONS

1. BACKGROUND

1.1 Increasingly, attention is being given to issues that have an impact on the environment and many initiatives are being driven with the view to assessing the impact of these conditions on the South African economy and society. Sustainable development implies that the promotion of economic and social development must occur in conjunction with the protection of the environment for present and future generations. This principle is embodied in inter alia, section 24 of the *Constitution of the Republic of South Africa* 108 of 1996 as well as the *National Environmental Management Act*.

1.2 The Department of Environmental Affairs and Tourism (DEAT) has identified littering in general as a great problem facing the South African environment and has focused on the effect of the indiscriminate dumping of thin plastic bags in particular, believing that this contributes greatly to the problem. As such, the DEAT has proposed new plastic bag regulations under section 24 of the *Environmental Conservation Act (73/1989)*, which were published in the Government Gazette of 19 May 2000 No. 21203, GN 1994 of 2000). The DEAT invited public comments on the proposed regulations as per the text of the published regulations. Consequently, the DEAT produced a report on the various comments received, which was officially tabled at the National Economic Development and Labour Council (NEDLAC) in November 2000. The report summary, it is stated that "The aims of the regulations are to restrict the production of very thin non-reusable plastic bags that are indiscriminately dumped into the environment and to promote recycling by specifying a minimum thickness for plastic shopping bags"[39].

1.3. As per the DEAT report, an overview of the industry was provided in a joint submission from the Plastics Federation of South Africa, the Chemical and Allied Industries Association, the South African Chamber of Business, the South African Retailers Association and the Steel and Engineering Industries Federation of South Africa. According to this overview, "approximately 350 000 tons of polyethylene per year is produced by two companies which are then converted to plastic products by the plastic converters. Polyethylene comes in different types including high density (PE-HD) and low density (PE-LD). From the total of approximately 600 plastic converters more than 200 produce thin film for the packaging industry. Approximately 230 000 tons of polyethylene are converted to thin film packaging each year. Of this 160 000 tons are used for some or other form of plastic bag. The vest type carrier bag component consists one quarter of this total i.e. 40 000 tons per year. There are 52 companies producing these bags, employing around 2 600 people in production capacities and approximately 1 200 in service capacities. The 40 000 tons of polyethylene converted into vest type bags are supplemented with another 4 000 tons of imported bags resulting in a total 8 billion bags with an average mass of 5.5 g/bag. With an average selling price of R10/kg the

[39] Department of Environmental Affairs and Tourism, Proposed Regulations under section 24 of the Environment Conservation Act (73/1989): Plastic Bag Regulations: Report on Comments Received, submitted to NEDLAC for discussion and formally tabled at NEDLAC in November 2000.

market demand by supermarkets, stores and other vendors is in excess of R440 million. The current consumption of vest type carrier bags is estimated at 160 bags/capita/annum or 880g/capita/annum". South Africa also exports a range of bags to the value of R 80 million.

1.4. Nedlac's business and labour constituencies had expressed concern that the phasing out of vest type carrier bags would have a significant impact on the South African social and economic situation. The envisaged impact is expected to include direct job losses, investment losses resulting from expensive machinery becoming obsolete and the increased costs of alternatives to consumers (of particular concern to those in the lower income groups).

1.5. From the public comments received in response to the DEAT's invitation mentioned above, the exploration of various possibilities have been suggested. These include: the production of more durable and reusable bags thereby growing the recycling industry (and creating jobs); the introduction of customer levies to promote recycling; the manufacture of degradable plastic bags; the introduction of educational programs and anti-littering campaigns; and the introduction of heavy anti-littering fines. The issue however, is that none of these have been quantified.

1.6. The regulations, along with a report on the public comments received, and a set of questions from DEAT, were tabled at the Nedlac Trade and Industry Chamber on 23 November 2000. All constituencies agreed that joint research should be urgently conducted in order to develop a shared understanding of the potential socio-economic impact of the regulations. This research would include an analysis of the likely impact on investment, employment and distortionary effects of isolating one aspect of the packaging industry for regulation. A task team was established under the auspices of the Trade and Industry Chamber to develop a terms of reference and guide the research process and make recommendations.

1.7. Therefore, in an attempt to cover possible contingencies, the proposed research would need to focus on the impact on five main areas, namely:

- employment (including both direct and indirect job losses, changing working conditions and the impact of these on workers and their families.
- the manufacture of plastic bags ;
- the potential for alternatives and their manufacture;
- consumers;
- distortions that may arise in the markets.

These are set out in more detail below under heading 3.

2. SCOPE OF STUDY

For the purposes of this research, data collection should be restricted to vest-type carrier bags, which are technically described as follows:

These bags are manufactured from extruded tubular polyethylene film in varying thickness.

The tube is folded lengthwise on both sides (side gussets).

A bag is then formed by heat sealing at both ends with a profiled cut at one end resulting in the formation of two handles.

The resultant bag has the shape of a "vest" or "T-shirt".

The reason for the focus on these thin, plastic bags with handles, such as those distributed in retail outlets, is the volume of production and usage relative to other forms of disposable consumer plastic. This was decided in order to define the scope of the study more accurately and facilitate sampling for the study. However, it was agreed that this would be done on the understanding that findings would therefore represent changes in vest-type bag production, and would need to be extrapolated to represent the impact on the plastic bag industry as a whole. Potential distortions resulting from the possible restriction of the final regulations to this narrower scope must be highlighted. For the purposes of the study, alternatives are restricted to paper bags and cloth bags. The potential for using biodegradable or photo-degradable plastic bags is also included in the scope of this study.

3. OBJECTIVES AND EXPECTED RESULTS

The fundamental objective of this research is to develop a shared understanding among constituencies of the potential positive and negative impacts of the proposed regulations on the following:

- investment and dis-investment, including the nature of the investment (whether it is capital intensive, labour intensive, as well as the geographic location of the investment)
- employment (job losses, job creation, shifts in the nature of work/employment patterns), including the profile of the workforce, skills profile and conditions of employment
- distortions in the market by isolating one aspect of the packaging industry,
- the knock-on effect of closing or transforming these industries (thereby impacting on other linked business and services, such as food suppliers, transport suppliers etc. and in particular consumers

To this effect, the research will be required to produce a socio-economic analysis of the following:

- Current state of the industry
- Ability to convert existing equipment to produce other goods
  - Ability to convert to heavier micron level
  - Options for phasing out/converting existing machinery – age and future life-span of current machinery
  - Planned future capital investment (10 year projection)
  - Investment, restructuring and employment patterns over the last 10 years
- Potential plant closures
- Potential job losses or changes in employment patterns in vest type carrier bag subsector.
- Potential job creation in paper or cloth bag sector, including the nature of that employment (wages, conditions of employment, etc.)
- Potential mobility of workers (in terms of skills, willingness to move (related to dependency ratios) and geographical shifts in the industry).
- Potential impact on consumers.

- Potential increase in recycling of bags and job creation (wages, conditions) in recycling sector.
- Potential distortionary impact of regulations on packaging industry.
- Comparison between cost of locally manufactured vest type carrier bags and imported bags of 30 and 80 micron.
- Impact on balance of payments of loss of exports
- The potential impact of the regulations on the plastic bag value chain as follows:
  - Polymer manufacturers
  - VCB manufacturers
  - Retailers (taking into account distribution and storage)
  - Consumers
- Current informal industry usage and reliance on thin plastic bags and alternatives

4. METHODOLOGY

It is anticipated that the project will comprise two phases namely collection of data and evaluation of impacts. It is intended that the project will be characterised by a consensus-driven approach, with close interaction between the consultants and constituencies at all stages of the research process. Constituencies, as represented in the task team, will approve each step of the research and inform the activities that will follow.

representative sample

4.1. Approach to data collection

It is envisaged that data will be collected by uniform questionnaires specifically designed (by the consultant) for each group identified in this document. Thequestionnaires will be followed up by interviews with a representative sample selected from each group. Responses should be coded to allow for confidentiality.

4.2. Scope of data collection

- Manufacturers of polymer (2 companies)
- Manufacturers of vest type of bags (52 companies)
- Follow up sample of manufacturers; sample to be proposed by consultant.
- Representative sample of retailers, sampling to be developed by consultants (*See Annexure 2 for a summary of the grocery component of the retail sector*).
- Manufacturers/suppliers of alternative bags sample to be proposed by consultant

- Recyclers (Currently only two companies process vest type carrier bags. Sampling would, in addition, include a selection of other recyclers to evaluate the extent to which they may extend their activities to include the proposed thicker bags.)
- Informal sector- sample of hawkers association representatives and craft workers.

4.3 Manufacturers of Polymer

The following information must be obtained from the polymer manufacturers:

4.3.1 Name of plant

4.3.2 Geographic location of plant

4.3.3 Amount of polymer supplied to plastic bag manufacturers of vest-type carrier bags.

4.3.4 Potential to find other markets for polymer if proposed regulations are implemented

4.3.5 Current investment in equipment for making the polymer

4.3.6 Potential need to manufacture different polymer type to manufacture thicker bags

4.3.7 Potential responses to the regulations, and the resultant implications on employment (e.g. job losses (with a profile of those who would lose their jobs) movement of workers, potential changes in working conditions, geographical location

4.4. Manufacturers of vest type carrier bags.

The following data will be collected from each plant:

4.4.1. Plant name

4.4.2. Geographical location

4.4.3. Breakdown of goods produced

– their % contribution to turnover

- value added and quantity of goods produced;

- size of bags produced

4.4.4. Exports and destination of exports in terms of turnover, product and volume;

4.4.5. Identified opportunities for increasing export of thinner bags;

4.4.6. Opportunities for utilisation of thinner plastics other than in shopping bags

4.4.7. Total production cost

4.4.8. % Labour cost of total cost, including a breakdown of the wages and benefits according to grade, occupational capacity, race and gender in real and percentage terms

4.4.9. Environmental cost of current production (including production transport and disposal) and projected environmental cost of 30 and 80 micron bag production.

4.4.10.Capitalisation of plants and the age of the machinery, with data over the past 10 years, as well as the date of any upgrades or purchases made of new machinery

4.4.11.Labour intensity of production processes for current, 30 and 80µ plastic bags over the past 10 years.

4.4.12.Profile of location of workers in the production process, , including the nature of the worker's contract, as well as their skills level, race and gender. .

4.4.13.Breakdown of workforce in terms of permanents, casuals & subcontracted workers, as well as the associated costs, over the past 10 years.

4.4.14.Gender breakdown of workers over the past 10 years.

4.4.15.Age breakdown of workers over the past 10 years.

4.4.16.Amount spent on education and training (absolute amount and % turnover), distinguished according to grade, occupational capacity and gender over the past 10 years.

4.4.17. Degree to which worker skills are portable.

4.4.18.Manufacturer's ability and options to convert existing equipment to produce higher micron levels

4.4.19.Additional or future plans for the plant, e.g. extending other product lines, in response to the implementation of the proposed regulations.

4.4.20.Planned future capital investment (10 year projection)

4.4.21.Possible responses if regulations are implemented

Questions for worker representatives in companies (specifically manufacturers of vest type carrier bags)

- Where do you live?
- How long does it take for you to travel to work?
- What are the wages and working conditions in the company?
- How many temps/ casuals
- How many people have been retrenched in the last 5 years?
- How much training takes place and who is trained and in what?
- How many people do workers support including spouses, parents, children and other family?
- Would you be able to move to find other work?
- Do you have a pension or provident fund and how much does the company contribute towards that?

4.5. Retailers

4.5.1.Current demand for

- Plastic bags 17/18 micron,
- Plastic bags 30 micron
- Plastic bags 80 micron
- Paper bag alternative to vest type carrier bags.
- Cloth bag alternative to vest type carrier bags.

4.5.2. Projected demand profile for 30 and 80µm plastic carrier bags

4.5.3. Projected demand profile for

- paper bag alternative to vest type carrier bags.
- cloth bag alternative to vest type carrier bags.

4.5.4. Proposals for absorption of cost of alternatives to 17/18 micron plastic bags

4.5.5.Possible responses should the regulations be implemented.

4.6. Manufacturers/Suppliers of alternatives:

The following information must be collected from paper bag manufacturers.

4.6.1. Paper bags:

(i) Plant name

(ii) Geographical location

(iii) Breakdown of goods produced

(iv) % contribution to turnover

(v) Value added and quantity of goods produced;

(vi) Size of bags produced

(vii) Exports in terms of turnover, product and volume and identified opportunities for increasing export

(viii) Total production cost

(ix) % Labour cost of total cost, including a breakdown of the wages and benefits according to grade, occupational capacity, race and gender in real and percentage terms

(x) Labour intensity of production over the past 10 years.

(xi) Potential to produce sufficient suitable alternatives to the current plastic bags.

(xii) Impediments to manufacturing alternatives should the regulations be implemented.

(xiii) Additional worker profile questions.

- Where are the workers working in the production process, including the nature of the worker's contract, as well as their skills level, race and gender. Figures for the past 10 years are required.
- Breakdown of workforce in terms of permanents, casuals & subcontracted workers, as well as the associated costs, over the past 10 years.
- Gender breakdown of workers over the past 10 years.
- Age breakdown of workers over the past 10 years.
- Amount spent on education and training (absolute amount and % turnover), distinguished according to grade, occupational capacity and gender over the past 10 years.
- Skill level of workers and degree to which these skills are portable.

(xiv) Planned future capital investment (10 year projection)

4.6.2. Manufacturers/ suppliers of cloth bags

There are no large-scale manufacturers of cloth bags in South Africa. The potential to undertake large-scale production of sufficient bags must be investigated. The small-scale local manufacture of cloth bags and importation of cloth bags must be investigated to determine the:

- potential cost to the consumer
- potential for job creation, specifying the nature of employment created (wage and skills levels, contracts, working conditions, geographical location

4.6.3. Potential Use of Biodegradable or Photo Degradable Plastic

An analysis of the potential use of biodegradable or photo degradable plastic in bags distributed by retail outlets, must be undertaken. This analysis should include potential shifts in production by polymer producers, and potential use by manufacturers. An indication must be given of whether existing operations might convert or expand, or whether new operations might be established. The implications of this for employment would need to be identified, including job creation, job losses, wage levels, nature of the workers' contracts, and impact on worker profiles (skills, race, gender and geographical).

4. 7. Recyclers

4.7.1. Plant name

4.7.2. Geographical location

4.7.3 Amount of plastic recycled

4.7.4. Type of polymer recycled

4.7.5. Amount of vest type carrier bags recycled

4.7.6 Collection method

4.7.7. Area from which plastic is drawn

4.7.8. Total operational cost

4.7.9. % Labour cost of total cost, including a breakdown of the wages and benefits according to grade, occupational capacity, race and gender in real and percentage terms

4.7.10. Capitalisation of plants and the age of the machinery, with data over the past 10 years, as well as the date of any upgrades or purchases made of new machinery

4.7.11. Breakdown of workforce in terms of permanents, casuals & subcontracted workers, as well as the associated costs, over the past 10 years.

4.7.12. Gender breakdown of workers over the past 10 years.

4.7.13. Age breakdown of workers over the past 10 years.

4.7.14. Amount spent on education and training (absolute amount and % turnover), distinguished according to grade, occupational capacity and gender over the past 10 years.

4.7.15. Skills levels of workers and degree to which these skills are portable.

4.7.16. Planned future capital investment (10 year projection)

4.7.17. Feasibility of recycling used thick plastic bags, including:

- Technical feasibility of recycling (dirty) thicker plastic carrier bags
- Cost of recycled material,
- Possible uses of recycled material (including projected analysis of supply and demand).

4.7.18. Potential impediments for recyclers to benefit from the potential of the regulations.

4.7.19. Estimate of potential additional jobs which may be created as a result of the proposed regulations.

4.8. Informal Sector

4.8.1. Sources of vest type carrier bags.

4.8.2. Volumes of vest type carrier bags used.

4.8.3. Potential responses to the regulations.

4.9. Government

A number of background questions need to be addressed in order to place the results of the research into context. These questions need to be posed to government. Consultants will be referred to the relevant government officials for this section. The following questions need to be addressed.

4.9.1. Motivation for 30 & 80 micron thickness

4.9.2. How will the regulations apply to imported bags? How will overseas manufacturers be subjected to the same penalties as local manufacturers in respect of lifecycle responsibility?

4.9.3. Confirmation that the prescription is estricted to "distribution" locally and that local manufacturers will still be able to manufacture thinner bags for the export market.

4.9.4. Motivation for the concept that the thicker bags will not cause visible pollution.

4.9.5. Is the government prepared to legislate a prescribed recycled content for certain products like refuse bags?

4.9.6. Government's proposals on enforcing the regulations in respect of importation of thinner bags.

4.9.7. Procurement policy with regards vest type carrier bags. Quantitative figures of procurement of vest type carrier bags.

4.9.8. Amount of polymer imported for use in current VCB manufacture.

4.9.9. Support offered by government to convert from 17/18 micron bag manufacture to thicker bags for conversion and conditions attached, (including supply side measures).

4.10. Lifecycle Analysis of Various Packaging Materials

A lifecycle analysis including the resource utilization and environmental impact cost must be carried out on the following bags.

- VCB plastic 17/18 micron
- VCB plastic 30 micron
- VCB plastic 80 micron
- Paper bag
- Cloth bag

5. INFORMATION WHICH WILL BE PROVIDED

The following information will be provided to the consultant by constituencies.

- List of manufacturers of polymer
- List of manufacturers of vest type bags
- List of recyclers to be sampled
- List of manufacturers of paper bags

6. RESEARCH PROCESS, TIMEFRAMES, AND DELIVERABLES

The research process will be managed by the plastic bag task team under the auspices of the Trade and Industry Chamber, which will serve as the Counterpart Group for the study. The responsibilities of the Counterpart Group will be to: -

6.1. Initially, evaluate the tenders received from the prospective consultants;

6.2. Thereafter, interact with consultants to approve each step in the research (e.g. design of questionnaires, interview schedules)

6.3. Report on the progress of the investigation;

6.4. Assist consultants to access reliable information;

6.5. Consider and approve the final report and recommendations of the consultant;

5.6. Ensure that sufficient and effective measures are introduced to enable the recommendations of the consultant to be implemented effectively;

The successful consultants would be expected to liaise with other stakeholders not represented on the Counterpart Group. The consultants shall be required to take into account other research being done in this area.

The anticipated timeframe is 3 months for the entire process, including appointment of consultants and completion of research.

Deliverable	**Description**	**Timeframe for Completion ***
1	Development of questionnaires and interview schedules Development of sampling frame	
2	Data collection and compilation from: - Polymer producers - Manufacturers - Retailers - Producers/suppliers of alternatives - Recyclers - Government departments - Informal sector (Raw data made available to counterpart group)	
3	Analysis, with assumptions clearly stated	
4	Interim report	
5	Final report	

** A realistic timeframe for each deliverable would need to be agreed by the counterpart group and the consultants.*

Annexure 1:Acronym List

CG:	Counterpart group (FRIDGE)
DEAT:	Department of Environmental Affairs and Tourism
Fridge:	Fund for Research into Industrial Development, Growth and Equity
Nedlac:	National Economic Development and Labour Council
PE - HD:	Polyethylene High Density
PE-LD:	Polyethylene Low Density
PE- LLD:	Polyethylene Linear Low-Density

Annexure 2:

Retailer figures (grocery stores only:)

Category	**Number**
Hyper stores & supermarkets	998
Superettes	1872
Urban grocers	13421
Rural grocers	13638
Cafes	15624
Total within RSA	45554

Regional turnover in groceries, toiletries and cosmetics:

Free State, Northern Cape:	6.8%
Eastern Cape:	8.7%
Western Cape:	5.6%
Mpumalanga, Northwest and Northern Province:	17.8%
Gauteng:	31.1.%