



THE PROPOSED EXPANSION OF THE SUPREME POULTRY CHICKEN PROCESSING PLANT'S SLAUGHTERING THROUGHPUT FROM 120 000 UNITS TO 150 000 UNITS PER DAY AND FOR THE RECOVERY, RECYCLING AND TREATMENT OF CHICKEN PROCESSING WASTE TO FEATHER MEAL ON ERF 9907, MAHIKENG, NORTH WEST PROVINCE

APPENDIX F: IMPACT ASSESSMENT PROCESS AND RATINGS

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Today's Impact | Tomorrow's Legacy

METHODOLOGY USED IN DETERMINING AND RANKING ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES

Impact Assessment Methodology

For each potential impact, the EXTENT (Spatial scale), MAGNITUDE (degree of the impact), DURATION (time scale), PROBABILITY (occurrence), IRREPLACEABILITY (loss of resources) and the REVERSIBILITY (degree to which the proposed impact can be reversed) will be assessed by the EAP as well as the Specialists. The assessment of the above criteria will be used to determine the significance of each impact, with and without the implementation of the proposed mitigation measures. The scale to be used to assess these variables and to define the rating categories are tabulated in **Table 1** and **Table 2** below.

Table 1: Evaluation components, ranking scales and descriptions (criteria).

Evaluation component	Ranking scale and description (criteria)
MAGNITUDE of NEGATIVE IMPACT (at the indicated spatial scale)	10 - Very high: Bio-physical and/or social functions and/or processes might be <i>severely</i> altered. 8 - High: Bio-physical and/or social functions and/or processes might be <i>considerably</i> altered. 6 - Medium: Bio-physical and/or social functions and/or processes might be <i>notably</i> altered. 4 - Low : Bio-physical and/or social functions and/or processes might be <i>slightly</i> altered. 2 - Very Low: Bio-physical and/or social functions and/or processes might be <i>negligibly</i> altered. 0 - Zero: Bio-physical and/or social functions and/or processes will remain <i>unaltered</i> .
MAGNITUDE of POSITIVE IMPACT (at the indicated spatial scale)	10 - Very high (positive): Bio-physical and/or social functions and/or processes might be <i>substantially</i> enhanced. 8 - High (positive): Bio-physical and/or social functions and/or processes might be <i>considerably</i> enhanced. 6 - Medium (positive): Bio-physical and/or social functions and/or processes might be <i>notably</i> enhanced. 4 - Low (positive): Bio-physical and/or social functions and/or processes might be <i>slightly</i> enhanced. 2 - Very Low (positive): Bio-physical and/or social functions and/or processes might be <i>negligibly</i> enhanced. 0 - Zero (positive): Bio-physical and/or social functions and/or processes will remain <i>unaltered</i> .
DURATION	5 - Permanent 4 - Long term: Impact ceases after operational phase/life of the activity > 60 years. 3 - Medium term: Impact might occur during the operational phase/life of the activity – 60 years. 2 - Short term: Impact might occur during the construction phase - < 3 years. 1 - Immediate
EXTENT (or spatial scale/influence of impact)	5 - International: Beyond National boundaries. 4 - National: Beyond Provincial boundaries and within National boundaries. 3 - Regional: Beyond 5 km of the proposed development and within Provincial boundaries. 2 - Local: Within 5 km of the proposed development. 1 - Site-specific: On site or within 100 m of the site boundary. 0 - None
IRREPLACEABLE loss of resources	5 – Definite loss of irreplaceable resources. 4 – High potential for loss of irreplaceable resources. 3 – Moderate potential for loss of irreplaceable resources. 2 – Low potential for loss of irreplaceable resources. 1 – Very low potential for loss of irreplaceable resources. 0 - None
REVERSIBILITY of impact	5 – Impact cannot be reversed. 4 – Low potential that impact might be reversed. 3 – Moderate potential that impact might be reversed. 2 – High potential that impact might be reversed. 1 – Impact will be reversible. 0 – No impact.
	5 - Definite: >95% chance of the potential impact occurring.

PROBABILITY (of occurrence)	4 - High probability: 75% - 95% chance of the potential impact occurring. 3 - Medium probability: 25% - 75% chance of the potential impact occurring. 2 - Low probability: 5% - 25% chance of the potential impact occurring. 1 - Improbable: <5% chance of the potential impact occurring.
Evaluation component	Ranking scale and description (criteria)
CUMULATIVE impacts	High: The activity is one of several similar past, present or future activities in the same geographical area, and might contribute to a very significant combined impact on the natural, cultural, and/or socio-economic resources of local, regional or national concern. Medium: The activity is one of a few similar past, present or future activities in the same geographical area, and might have a combined impact of moderate significance on the natural, cultural, and/or socio-economic resources of local, regional or national concern. Low: The activity is localised and might have a negligible cumulative impact. None: No cumulative impact on the environment.

Table 2: Definition of significance ratings (positive and negative).

Significance Points	Environmental Significance	Description
125 – 150	Very high (VH)	An impact of very high significance will mean that the project can proceed, and that impacts are irreversible, regardless of available mitigation options.
100 – 124	High (H)	An impact of high significance which could influence a decision as to whether or not to proceed with the proposed project, regardless of available mitigation options.
75 – 99	Medium-high (MH)	If left unmanaged, an impact of medium-high significance could influence a decision about whether or not to proceed with a proposed project. Mitigation options should be relooked.
40 – 74	Medium (M)	If left unmanaged, an impact of moderate significance could influence a decision about whether or not to proceed with a proposed project.
<40	Low (L)	An impact of low is likely to contribute to positive decisions about whether or not to proceed with the project. It will have little real effect and is unlikely to have an influence on project design or alternative motivation.
+	Positive impact (+)	A positive impact is likely to result in a positive consequence/effect, and is likely to contribute to positive decisions about whether or not to proceed with the project.

Once the evaluation components have been ranked for each potential impact, the significance of each potential impact will be assessed (or calculated) using the following formula:

- **SP (Significance Points) = (Magnitude + Duration + extent + irreplaceability + reversibility) x probability.**

The maximum value is 150 SP (Significance Points). The unmitigated and mitigated scenarios for each potential environmental impact should be rated as per **Table 2** above.

Potential Impacts during Planning, Design and Construction Phases

No physical construction or excavations will occur as the facility has been designed to accommodate an increase in the slaughter volumes (i.e. number of units), therefore there are no proposed impacts to be assessed.

Potential Impacts during Operational Phase

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:			
Nature of impact: Handling of general and hazardous waste materials on the development site.	Activity: Waste will be generated on site, if not disposed of correctly it will become a nuisance within the area and to the surrounding community. The expected general waste produced during the operational phase would be of a similar amount than what is currently produced.		Current operational phase impacts are associated with the no-go alternative, thus no assessment has been undertaken.
Magnitude:	4	4	-
Duration:	3	3	-
Extent:	3	1	-
Irreplaceable:	2	1	-
Reversibility:	2	1	-
Probability:	3	2	-
Total SP:	42	20	-
Significance rating:	M	L	-
Cumulative impact:	L	L	-
Nature of impact: Traffic impacts associated with the movement of vehicles within the area.	Activity: The regular movement of vehicles on James Watt Crescent and within the Industrial area would increase traffic flow and impede vehicle movement. It should however be noted that although more birds would be transported to the facility, these are smaller birds and would subsequently require a similar amount of space to be transported. Thus, the same number of vehicles would be required to transport the birds to the facility. Therefore, the impact of traffic in the area after expansion would be similar to the current operational impact.		Current operational phase impacts are associated with the no-go alternative, thus no assessment has been undertaken.
Magnitude:	6	4	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
Duration:	3	3	-
Extent:	1	1	-
Irreplaceable:	1	1	-
Reversibility:	2	2	-
Probability:	3	3	-
Total SP:	39	39	-
Significance rating:	L	L	-
Cumulative impact:	L	L	-
Nature of impact: Surface and groundwater contamination from the Processing Facility and the constructed diesel tanks.	Activity: Surface and groundwater can become contaminated due to operation of the Processing Plant. Currently, liquid effluent is discarded within the municipality drains and is tested on a monthly basis. Sieves at the back of the facility collect any solid materials (when the blood, feathers and fat material is removed), preventing these materials from entering the effluent drains. The solid materials collected in the sieves are processed at the Sterilizing Plant into feather meal.		Current operational phase impacts are associated with the no-go alternative, thus no assessment has been undertaken. Currently, liquid effluent is discarded within the municipality drains and is tested on a monthly basis. The Diesel tanks will be placed in a constructed bunded area with an impermeable surface, preventing the hydrocarbons from leaching into the soil.
Magnitude:	8	4	-
Duration:	3	3	-
Extent:	2	2	-
Irreplaceable:	3	2	-
Reversibility:	3	2	-
Probability:	3	2	-
Total SP:	57	26	-
Significance rating:	M	L	-
Cumulative impact:	L	L	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
Nature of impact: Increased risk of fires.	Activity: Due to the presence of personnel in the area, fires can occur if not managed to the correct standard.		Current operational phase impacts are associated with the no-go alternative; thus, no assessment has been undertaken. The facility is compliant with respect to Occupational Health and Safety regulations regarding Fire Management as per the Fire Risk Survey conducted by A & J Fire Services. Hot, cold work and confined space permit systems are implemented with lock-out-out procedure documents in place. Smoking areas are situated more than fifteen metres (15 m) away from any buildings.
Magnitude:	6	4	-
Duration:	3	3	-
Extent:	2	1	-
Irreplaceable:	2	2	-
Reversibility:	3	2	-
Probability:	3	2	-
Total SP:	48	24	-
Significance rating:	M	L	-
Cumulative impact:	L	L	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON BIOLOGICAL ASPECTS:			
Nature of impact: Pesticides to control pests such as flies and rodents.	Activity: The Processing Plant will use pesticides (e.g., organic compounds and organo-metallic compounds) to control flies and rodents to prevent diseases (flies are carriers of diseases such as <i>Salmonella</i> , <i>Eschericha</i>		Current operational phase impacts are associated with the no-go alternative; thus, no assessment has been undertaken.

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
	<i>ecoli</i> as well as <i>Streptococcus</i> and <i>Staphylococcus</i>). These pesticides can contaminate the soil, water, turf, vegetation and native biota if not managed correctly.		<p>It should be noted that an increase in pesticides would not occur. Although more birds will be slaughtered should the slaughtering capacity be increased, a similar amount of biological material would be processed.</p> <p>A Pest Control Program is currently implemented on site and an external Pest Control Company is responsible for the management of pests on site.</p>
Magnitude:	8	4	-
Duration:	3	3	-
Extent:	3	1	-
Irreplaceable:	3	3	-
Reversibility:	3	1	-
Probability:	4	2	-
Total SP:	80	24	-
Significance rating:	MH	L	-
Cumulative impact:	L	L	-
Nature of impact: Pathogens present due to carcasses of the chickens.	Activity: The carcasses of the chickens can be a source of odours, flies and diseases if not managed correctly. Currently, the facility is fully compliant with respect to Occupation Health and Safety Legislation and the Health Act regarding the general hygiene requirements for food premises and the transportation of food. A Standard Operating Procedure (SOP) is implemented at the facility which deals with the issue regarding odours and how best to prevent said odours from emanating at the facility.		<p>Current operational phase impacts are associated with the no-go alternative, thus no assessment has been undertaken.</p> <p>Currently, the facility is fully compliant with respect to Occupation Health and Safety Legislation and the Health Act regarding the general hygiene requirements for food premises and the transportation of food. An odour management plan is in place as is required for the AEL.</p>
Magnitude:	6	4	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
Duration:	3	3	-
Extent:	3	1	-
Irreplaceable:	3	3	-
Reversibility:	3	1	-
Probability:	3	2	-
Total SP:	54	24	-
Significance rating:	M	L	-
Cumulative impact:	L	L	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON SOCIO-ECONOMIC ASPECTS:			
Nature of impact: Operation Activities may have a positive impact on the local and regional socio economic conditions.	Activity: During the operational phase of the proposed expansion, it will create employment opportunities for individuals from the surrounding community. It is estimated that 17 employment opportunities would be created.		It is not expected that any additional employment opportunities will be created should the No-Go Alternative take precedence.
Magnitude:	6		4
Duration:	3		3
Extent:	2		2
Irreplaceable:	3		3
Reversibility:	4		3
Probability:	4		2
Total SP:	72		30
Significance rating:	M (+)	-	L (-)
Cumulative impact:	-	-	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
Nature of impact: Occupational Health and Safety.	Activity: During the operational phase, accidents, occupational diseases, ill health and damage to property can occur if pre-cautionary measures are not taken.		Current operational phase impacts are associated with the no-go alternative, thus no assessment has been undertaken. Currently, the facility is fully compliant with respect to Occupation Health and Safety Legislation.
Magnitude:	6	4	-
Duration:	3	3	-
Extent:	3	1	-
Irreplaceable:	3	3	-
Reversibility:	3	1	-
Probability:	3	2	-
Total SP:	54	24	-
Significance rating:	M	L	-
Cumulative impact:	L	L	-
Nature of impact: Operation Activities will have a positive impact on local and regional food supply.	Activity: During the operational phase of the proposed expansion, more birds will be slaughtered and therefore an increase in the local and regional food supply. Food security in the area would therefore be improved.		Should the No-Go Alternative take precedence, there would not be an increase in the slaughtering volumes and thus food supply in the area would be infringed upon.
Magnitude:	4	-	4
Duration:	3	-	3
Extent:	2	-	2
Irreplaceable:	3	-	3
Reversibility:	4	-	3
Probability:	4	-	2
Total SP:	72	-	30
Significance rating:	M (+)	-	L (-)

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
Cumulative impact:	-	-	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON NOISE:			
Nature of impact: Noise nuisance generated by site operations.	Activity: Noise nuisance that may be created by the operation and maintenance work of the Steam generators and Rendering Plant, trucks and chickens (the facility is situated within the industrial area of Mahikeng). Please note that Occupational Noise surveys are conducted every second year. It is therefore not expected that more noise will be generated should the expansion occur.		Current operational phase impacts are associated with the no-go alternative, thus no assessment has been undertaken.
Magnitude:	6	4	-
Duration:	3	3	-
Extent:	2	2	-
Irreplaceable:	3	3	-
Reversibility:	3	3	-
Probability:	3	2	-
Total SP:	51	30	-
Significance rating:	M	L	-
Cumulative impact:	L	L	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
POTENTIAL ATMOSPHERIC IMPACT:			
Nature of impact: Emissions and odour from the Processing Plant	Activity: Emissions and odours from the Processing Plant could add to atmospheric pollution.		Current operational phase impacts are associated with the no-go alternative, thus no assessment has been undertaken.

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
	Regarding emissions, an approved SOP (OHSaES 7.8.18P) is implemented on site.		
Magnitude:	6	4	-
Duration:	3	3	-
Extent:	3	1	-
Irreplaceable:	3	3	-
Reversibility:	3	1	-
Probability:	3	2	-
Total SP:	54	24	-
Significance rating:	M	L	-
Cumulative impact:	L	L	-

Operational Phase	Expansion Alternative 1		No-Go Alternative
	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON THE CHICKENS:			
Nature of impact: Humane handling practices.	Activity: Bruises, mortalities, transport and stress associated with the handling of the birds. It must however be noted that a food safety management system is currently implemented with regards to Animal Welfare and that humane handling practices are in place at the facility.		Current operational phase impacts are associated with the no-go alternative, thus no assessment has been undertaken.
Magnitude:	6	4	-
Duration:	3	3	-
Extent:	3	2	-
Irreplaceable:	3	3	-
Reversibility:	3	2	-
Probability:	2	2	-
Total SP:	48	28	-

Significance rating:	M	L	-
Cumulative impact:	L	L	-

Potential Impacts during the Decommissioning Phase

It is not envisioned that the Processing Facility will be decommissioned in the foreseeable future, therefore there are no proposed impacts to be assessed.

Any other impacts:

Operational Phase	Alternative 1		Alternative 2		Alternative 3		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
ANY OTHER IMPACTS:							
N/A							