
GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF FORESTRY, FISHERIES AND THE ENVIRONMENT

NO. 1849

9 March 2022

NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008)

CONSULTATION ON THE DRAFT INDUSTRY WASTE TYRE MANAGEMENT PLAN

I, Dr Thulani Dlamini in my capacity as the Chief Executive Officer of the Council for Scientific and Industrial Research (CSIR) which is as an organ of state, hereby consult on the draft Industry Waste Tyre Management Plan (IndWTMP) in terms of sections, (29(6), 72 and 73 of the National Environmental Management: Waste Act, 2008 (Act No. 59, 2008) (NEM: WA) as set out in the Schedule. The IndWTMP is prepared under section of 29(1) of NEM: WA.

Members of the public are invited to submit to the CSIR, within 30 days of publication of this Notice in the *Gazette*, written representations on or objections to the following addresses:

By post to: The Chief Executive Officer of the CSIR
Attention: Prof Suzan Oelofse
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By hand at: CSIR Main Campus, Meiring Naudé Avenue, Brummeria, Pretoria
By email: Tyres@csir.co.za

Any enquiries in connection with the notice can be directed to Prof Suzan Oelofse at:
Tel: (012) 841 4333
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The copy of the draft IndWTMP can also be accessed at <http://sawic.environment.gov.za> under "Draft documents for comment" or on the Department of Forestry, Fisheries and the Environment website on www.environment.gov.za or obtained at the Department's offices.

Comments received after the closing date may not be considered.



DR THULANI DLAMINI
CEO: COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH

SCHEDULE

INDUSTRY WASTE TYRE MANAGEMENT PLAN

**In terms of section 29 of the National Environmental Management:
Waste Act, 2008 (Act No. 59 of 2008)**

DRAFT 9

FEBRUARY 2022



**forestry, fisheries
& the environment**

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

PREFACE

The Minister of Forestry, Fisheries and the Environment (*"the Minister"*) on 29 November 2019 gave notice in terms of section 29(1) of the National Environmental Management: Waste Act 59 of 2008 (*"NEM: WA"*) to the Council for Scientific and Industrial Research (*"CSIR"*) to develop an Industry Waste Tyre Management Plan.

The Industry Waste Tyre Management Plan (IndWTMP) constitutes sub-ordinate legislation, which is legally binding and enforceable. Accordingly, it must be implemented as a compliance mechanism to ensure that identified parties are held accountable in accordance herewith. This IndWTMP provides the requirements for the implementation of effective and efficient waste tyre management in South Africa. This includes outlining the guidelines and requirements, which must be adhered to and complied with by all role-players concerned. Specifically, it puts forward a mandate, brief and criteria, which prospective Implementers must meet in order to be eligible for operationalising and executing waste tyre management. Accordingly, the IndWTMP, read with the provisions of the NEM: WA and the amended Waste Tyre Regulations, 2017, in conjunction with the approved business plan submitted by an Implementer(s), establishes a comprehensive waste management approach and plan. Failure to manage waste tyres as prescribed in the IndWTMP is a criminal offence in terms of section 67(1)(d) of the NEM: WA and is punishable in terms of section 68(2) of NEM: WA.

Draft

Executive Summary

The development of this IndWTMP followed the section 29 process in terms of NEM: WA. The current legislative framework as contained in the Constitution of 1996, National Environmental Management Act, 1998 (Act No. 108 of 1998) (NEMA), NEM: WA: Waste Tyre Regulations, 2017, the NEM: WA: National Norms and Standards for Disposal of Waste to Landfill 2013, and the National Pricing Strategy for Waste Management of 11 August 2016 provides the setting for the IndWTMP. On approval by the Minister, the Waste Management Bureau (WMB), must appoint Implementer(s) for the IndWTMP on contract following an open tender process. Funding for the implementation of the IndWTMP will be through a budgetary allocation from National Treasury that will be disbursed through the WMB in accordance with section 34E(1)(a) of NEM: WA.

The objectives of the IndWTMP are to:

1. Establish a waste tyre processing sector in South Africa which will reduce the negative environmental impacts of waste tyres and support enterprise development and job creation in a circular economy;
2. Expand the waste tyre processing capacity of South Africa; and
3. Develop monitoring systems to ensure effective reporting against targets.

Meeting these objectives will address current challenges relating to waste tyre management, including:

1. The annual inflow of waste tyres exceeds current processing capacity resulting in overflowing depots;
2. Over-full depots result in collection backlogs from dealers; and
3. Low surety of supply impede investment in waste tyre processing infrastructure.

In addition, it addresses the information requirements as outlined in section 30(2) of NEM: WA as follows:

IN TERMS OF THE ACT	ADDRESSED IN THE FOLLOWING WAY
a) The amount of waste that is generated	Refer to item 2.1
b) Measures to prevent pollution or ecological degradation	Refer to item 3.5
c) Targets for waste minimisation through waste reduction, re-use, recycling and recovery	Refer to item 3.4.3
d) Measures or programmes to minimise the generation of waste and the disposal of waste	Due the primary use of tyres and the nature of the generation of waste tyres, it is not practical at this stage to address measures to minimise the generation of waste tyres
e) Measures or actions to be taken to manage waste	Refer to item 3.6
f) The phasing out of the use of specified substances	Due the primary use of tyres and the nature of the generation of waste tyres, it is not practical at this stage to address the phasing out of the use of specified tyres
g) Opportunities for the reduction of waste generation through change to packaging, product design or production processes	Refer to item 4.7.7 on Research, Development and Innovation
h) Mechanisms for informing the public of the impact of the waste generating	Refer to item 3.5

products or packaging on the environment	
i) The extent of any financial contribution to be made to support consumer-based waste reduction programmes	Refer to item 4.6.3
j) The period that is required for implementation of the IndWTMP for Waste Tyres	Refer to item 4.6
k) Methods for monitoring and reporting	Refer to item 4.7
l) Any other matter that may be necessary to give effect to this Act	The Minister has the power to rescind, revoke, amend, or vary the IndWTMP in her discretion as entrenched in section 10(3) of the Interpretation Act 1957, (Act No. 33 of 1957); The approval notice of the plan will specify the intervals at which the plan must be reviewed.

The IndWTMP is intended to develop an efficient and competitive value chain for South African waste tyre processing through a focused effort to increase processing capacity (beneficiation and recycling), to create local markets and to participate in international markets for waste tyre products, and to create opportunities for new Small, Medium and Micro Enterprises (SMMEs) development and job creation along the value chain.

Legacy stockpiles (pre-30 November 2012) are managed in accordance with stockpile abatement plans approved by the Minister and are thus excluded from the scope of the IndWTMP.

Definitions

In this IndWTMP any word or expression to which a meaning has been assigned in the NEM: WA, or in the Waste Tyre Regulations, 2017, bears that meaning, unless the context otherwise indicates—

Collection points	means areas of business from which waste tyres are collected, or a commercial area where waste tyres may be collected including but not limited to, mines, farms, and tyre dealers.
Consumer	means any person who use tyres, for whatever purpose.
Implementer	means a registered company, appointed by the Waste Management Bureau or the Department of Forestry, Fisheries and the Environment in terms of a valid Memorandum of Agreement, for the purpose of implementing the Industry Waste Tyre Management Plan.
Industry Waste Tyre Management Plan	means this Waste Tyre Management Plan once approved by the Minister in terms of section 29 of NEM:WA.
Legacy stockpile	means a waste stockpile which was in existence on or before 30 November 2012.
Micro depot	means an informal facility that is used for temporary storage of waste.
Micro-collector	means an individual from the informal sector that collects waste tyres.
Mutilate	means mutilation of a tyre as per regulation 6(2) of the Waste Tyre Regulations, 2017.
National Norms and Standards for Disposal of Waste to Landfill	means the Norms and Standards published under Government Notice R636 in Government Gazette 36784 of 23 August 2013.
National Norms and Standards for the Storage of Waste, 2013	means the Norms and Standards published under Government Notice 926 in Government Gazette 37088 of 29 November 2013.
Pre-processing	means pre-treatment of waste tyres to make the waste tyres suitable for transportation or for a specified treatment or processing option. Pre-processing includes sorting, baling, cutting (downsizing), shredding or debanding.
Pre-processing facility	means a facility where pre-processing of waste tyres is done.
The Depaertment	means the Department of Forestry, Fisheries, and the Environment
Tyre	means a continuous covering made of natural rubber or synthetic rubber or a combination of natural and synthetic rubber encircling a wheel, whether new, used or retreaded, excluding tyres from motorcycles, bicycles, and tricycles.
Tyre dealer	means any person or entity that distributes, or otherwise deals commercially, in tyres.
Tyre levy	means the environmental levy on tyres to be paid into the National Revenue Fund by the manufacturers, importers or producers of tyres and collected by the South African Revenue Service in terms of section 13B of the NEM: WA, read with Part 3 of Schedule No. 1 to the Customs and Excise Act, 1964 (Act No. 91 of 1964) as amended.
Tyre producer	means any person or institution engaged in the commercial manufacture or import of tyres and retreadable casing, and the import of vehicles fitted with tyres for distribution in South Africa.

Waste disposal facility	means any site or premises used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premises;
Waste tyre	means a new, used, retreaded or unroadworthy tyre not suitable to be retreaded, repaired, or sold as a part-worn tyre and not fit for its original intended use.
Waste tyre depot operator	means person or entity responsible for the operation of a facility that is used for temporary storage of waste tyres in terms of regulation 10 of the Waste Tyre Regulations, 2017.
Waste tyre processor	means a person or facility that is engaged in the commercial re-use, recycling, or recovery of waste tyres.
Waste tyre stockpile abatement plan	means a plan, prepared by a person or entity who had a waste tyre stockpile prior to 30 November 2012, indicating the manner and timeframe in which the stockpile will be removed.
Waste tyre storage site/depot	means a site on which predominantly waste tyres of any form are stored and have been stored continuously for a period greater than two years, and which cover an area greater than 500m ² , but excludes a waste disposal facility.
Waste tyre transporter	means a person or entity duly registered with the Waste Management Bureau and duly appointed in terms of this IndWTMP, who conveys or transfers waste tyres between any of the following facilities: a producer, a tyre dealer, a waste tyre storage site, a depot, or collection points where waste tyres may be collected or waste tyre processors.
Waste Tyre Regulations, 2009,	Means the regulations published under Government Notice No. R149 in Government Gazette No. 31901 of 13 February 2009, as amended by Government Notice No. 1493, published in <i>Government Gazette</i> No. 40470 of 2 December 2016.
Waste Tyre Regulations, 2017	means the regulations published Government Notice No. 1064 in Government Gazette 41157 of 29 September 2017 as amended from time to time.

Acronyms

CSIR	Council for Scientific and Industrial Research
CWM	Chemicals and Waste Management Branch
DSI	Department of Science and Innovation
DTIC	Department of Trade, Industry, and Competition
ECA	Environment Conservation Act, 1989 (Act No.73 of 1989)
EoI	Expression of Interest
EU	European Union
IAC	Industry Advisory Committee
ICT	Information and Communication Technology
IndWTMP	Industry Waste Tyre Management Plan
IP	Intellectual Property
ITAC	International Trade Administration Commission
LTR	Light Truck Radial tyre
NDoT	National Department of Transport
NDP	National Development Plan
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NGP	National Growth Path
OEM	Original Equipment Manufacturing
OTR	Off the Road tyre, mainly used for the Giant truck vehicles in mine areas
RASA	Recycling Association of South Africa
SALGA	South African Local Government Association
SANRAL	South African National Roads Agency
SARS	South African Revenue Service
SATMC	South African Tyre Manufacturers Conference
SAWIS	South African Waste Information System
SMME	Small, Medium, and Micro Enterprises
TDF	Tyre Derived Fuel
TEPA	Tyre, Equipment, Parts Association
TIASA	Tyre Importer Association of South Africa
WMB	Waste Management Bureau
WTP	Waste Tyre Processing
WTPC	Waste Tyre Processing Company

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Introduction

On 29 November 2019, the Minister of Forestry, Fisheries, and the Environment, Ms BD Creecy (the Minister), issued a Notice in terms of section 29(1) of NEM: WA, to call on the CSIR, an organ of state, to develop an IndWTMP. The Minister further on 22 November 2021 condoned, in terms of section 47C of NEMA, the late submission of the IndWTMP for Waste Tyres by the CSIR, and extended the timeframe for finalisation of the IndWTMP by 12 months. The section 29 notice followed the rejection of all the IndWTMPs submitted by the tyre industry as stated in the Notice of closing off the section 28 of NEM: WA process that was published in Government Notice R.1151 of Government Gazette 42695 on 11 September 2019.

The National Development Plan (NDP) of South Africa calls for the absolute reduction in the total volume of waste disposed to landfills each year, increased recycling of waste, the development of green products and services, and carbon-pricing to reduce carbon emissions. With the NDP as guidance for its programme of action, government intends to speed up change and progress in the country through the New Growth Path (NGP), which focuses on promoting investment and competitiveness in leading sectors and industries.

The durability of tyres makes landfilling problematic since buried tyres tend to re-surface, do not compact due to their shock absorbing properties, and are resistant to degradation (long chain polymers are protected by antioxidants and anti-ozonants that resist degradation). In addition, the high calorific value of this waste stream adds to the potential fire hazard at landfills. Burning of waste tyres releases pollutants including particulates, carbon monoxide (CO), sulphur oxides (SO₂), oxides of nitrogen (NO_x), volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), chlorinated dioxins and furans, hydrogen chloride, benzene, polychlorinated biphenyls (PCBs); and metals such as arsenic, cadmium, nickel, zinc, mercury, chromium, and vanadium. The recycling rate for waste tyres in South Africa is approximately 20% as compared to close to 100% in Europe. Following the waste management hierarchy, South Africa needs to create an enabling environment for increased reuse, re-treading, energy and material recovery from waste tyres.

The issues that require attention in the IndWTMP can be summarised as:

- a) Annually, more waste tyres are being generated than are being managed in South Africa;
- b) Depots are over-full;
- c) Waste tyre transporters are unable to offload at over-full depots resulting in collection backlogs from dealers;
- d) Circumstances force tyre dealers to store waste tyres, in contravention of section 10 of the NEM: WA Waste Tyre Regulations, 2017;
- e) The waste tyre processing sector is under-developed; and uncertainty regarding surety of supply to waste tyre processors impede investment in waste tyre processing infrastructure.

State of waste tyre management in South Africa, 2020

How many waste tyres in South Africa?

An average of 13 million tyres are sold in South Africa each year through a network of between 1400 to 2000 dealerships. The estimated total weight of these new tyres is 300 000 tonnes. Passenger vehicle tyres (including SUV/4x4 & Light Truck Radial Tyre (LTR)) contribute an estimated 89% (average 10.2kg/tyre) and commercial vehicle (truck) tyres (average 66.9kg/tyre) 11% to the total number of tyres (excluding OTR tyres).

Applying an 18-20% reduction in weight between new and waste tyres, results in an estimated 240 000 – 250 000 tonnes of end-of-life tyres (excluding OTR tyres) per year in South Africa. The majority of which are returned to the

dealerships and fitment centres when new tyres are fitted. The estimated OTR waste tyres is approximately 20 000 tons per annum. The total estimated annual flow of waste tyres is therefore between 250 000 and 300 000 tonnes.

Waste tyre backlogs (stockpiles)

Uncollected tyres that are not processed are stockpiled at depots. Currently there are 26 registered depots from which 24 are more than 90% full (see Table 1). The total waste tyre stockpiles (excluding waste tyres managed in accordance with abatement plans) in South Africa are estimated to be as high as 900 000 tonnes. The waste tyre units per depot by type as on 13 August 2020 is provided in Table 2.

Table 1: Storage occupation per depot, August 2020

Provinces	Depots	Depot size in m ²	Storage occupation %
Gauteng	Glen Austin	9 400	100%
	Waltloo	1 000	90%
	Klerksoord	18 565	90%
	Midrand	9 500	100%
	Tembisa	4 000	100%
	Randfontein	26 320	100%
	Westonaria	26 961	100%
	Springs	28 000	100%
TOTAL GP		123 746	
KZN	Cato Ridge	15 000	100%
	Hammersdale	4 678	100%
	Ladysmith	4 500	90%
	Richardsbay	1 000	69%
TOTAL KZN		25 178	
Western Cape	Atlantis	22 920	100%
	Mosselbay	1 300	100%
TOTAL WC		24 220	
Mpumalanga	Ferrobank	7 467	100%
	Nelspruit	11 265	94%
	Belfast	50 000	100%
TOTAL MP		68 732	
Free State	Bloemfontein	42 000	97%
	Kroonstad	50 000	100%
TOTAL FS		92 000	
Eastern Cape	East London	4 612	98%
	PE Markman	7 495	100%
	Ngcobo	42 827	94%
	Uitenhage	18 800	65%
TOTAL EC		73 734	
Northern Cape	Upington	4 170	100%
North West	Rustenburg	8 500	95%
Limpopo	Polokwane	30 000	100%

Table 2: Tyre units per depot by type as of 13 August 2020 (data obtained from the WMB)

		Weight in KG																			
		8,5	13,5	13,5	65	65	110	2	85	50	520	1000									
		Number of Units																			
		Loose tyres											Bales					Pap scrap			
Provinces	Depots	Passenger	4 x 4	Light commercial	Heavy Commercial	Buffed Heavy commercial	Agricultural	Motor Cycle	Solids & industrial	Aircraft	OTR	Total	Passenger Bales	4X4 Bales	Motor Cycle Bales	Truck Bales	Light commercial Bales	Total	Pap Scrap stockpiles	Pap scrap bags	Cut/Scrap bales
Gauteng	Glen Austin	6 033	1 547	1 768	6 050	0	2 513	605	2 562	605	662	22 345	620	0	0	0	0	620	0	0	0
	Walloo	25 676	17 864	0	0	0	0	0	0	0	0	43 540	135	100	0	0	0	235	0	0	0
	Klerksoord	0	50	790	19 163	0	0	0	0	0	779	20 782	2 662		0	0	0	2 662	0	0	0
	Midrand	161 990	67 257	24 649	130 503	0	6 673	260	7 206	7 126	1 764	423 428	191	194	0	0	0	385	1 big pile	0	6
	Tembisa	11 363	4 301	3 274	2 206	0	549	1 402	284	726	1 044	25 149	489	160	48	0	0	697	0	0	0
	Randfontein	493 108	399 384	4 591	178 462	0	2 153	4 713	204	68	618	1 083 301	222	0	0	0	0	222	0	0	0
	Westonaria	365 172	906	6 383	9 282	0	5 655	4 245	154	0	401	685 198	622	20	0	0	0	642	1 big pile	0	0
	Springs	44 652	768	3 237	18 575	0	1 022	0	3 421	200	528	72 403	277	0	0	0	0	277	0	0	0
TOTAL GP		1 107 994	785 077	44 692	364 241	0	18 565	27 225	13 831	8 725	5 796	2 376 146	5 218	474	48	0	0	5 740	0	0	6
Nothorn Cape	Upington	985	1 047	4 932	18 015	0	4 516	3 698	3 786	0	306	37 285	7	442	0	0	0	449	1	0	0
	TOTAL NC	985	1 047	4 932	18 015	0	4 516	3 698	3 786	0	306	37 285	7	442	0	0	0	449	1	0	0
North West	Rustenburg	3 101	6 522	3 221	12 416	0	484	33	249	0	1 602	27 628	382	492	0	0	0	874	1	0	0
TOTAL NW		3 101	6 522	3 221	12 416	0	484	33	249	0	1 602	27 628	382	492	0	0	0	874	1	0	0
KZN	Cato Ridge	4 000	3 718	3 996	2 665	0	3 190	600	500	0	2 543	21 212	24	119	0	143	5	291	4		
	Hammersdale	0	0	0	2 853	0	0	0	0	0	0	2 853	56	0	0	0	0	56	36		
	Ladysmith	1 256	430	708	1 063	0	1 632	84	210	0	563	5 946	77	77	0	0	6	160	1 big pile	2 860	84

	Richardsbay	62	24	882	0	0	45	720	0	0	5	1 738	44	87	0	0	0	131	5600kg	0		
TOTAL KZN		5 318	4 172	5 586	6 581	0	4 867	1 404	710	0	561	31 749	19	69	0	143	11	94	2 860	0		
Western Cape	Atlantis	118 666	159 850	10 900	30 262	0	9 400	5 242	16 549	0	804	351 673	54	301	1 pile	0	0	355	5	0	99	
	Mosselbay	57	38	1 376	902	0	614	475	471	0	16	3 949	67	100				116	2	6	15	
TOTAL WC		118 723	159 888	12 276	31 164	0	10 014	5 717	17 020	0	820	355 622	121	401	0	0	0	471	7	6	114	
Limpopo	Polokwane	243	1303	53 482	18 071	0	7 413	1 090	5 759	1 172	1506 4	103 597	128	787	0	0	896	1811	3	0	16	
TOTAL LP		243	1 303	53 482	18 071	0	7 413	1 090	5 759	1 172	15 064	265 433	128	787	0	0	889	811	3	0	16	
Mpumalanga	Ferrobank	470	1 029	6 595	10 688	1 028	3 807	131	377	57	716	24 428	103	145	0	0	0	248	0	857	0	
	Nelspruit	5 917	4 824	8 917	20 096	0	9 480	4 944	2 100	169	6 752	57 282	32	173	0	0	0	205	0	0	0	
	Belfast	10 116	7 731	44 352	157 984	0	27 143	0	3 515	811	3 808	245 344	1 712	695	0	527	2	936	313	0	313	
TOTAL MP		16 503	13 584	59 864	188 768	1 028	40 430	5 075	5 992	1 037	11 276	327 054	1 847	013	0	527	2	5	389	313	857	313
Free State	Bloemfontein	27 502	93 408	83 187	103 559	0	14 294	390	8 857	24	2 119	333 340	3 432	0	0	0	0	432	3	1	0	0
	Kroonstad	33 678	8 217	8 521	49 281	0	3 438	0	2 807	0	1 524	107 466	1 022	611	0	0	0	633	2	1	0	160
TOTAL FS		61 180	101 625	91 708	152 840	0	17 732	390	11 664	24	3 643	440 806	4 454	611	0	0	0	6	065	2	0	160
Eastern Cape	East London	8	106	4 001	5 667	0	551	833	186	0	97	11 441	220	586	0	0	0	806	0	0	0	
	PE Markman	57 224	23 129	1 264	21 802	0	1 531	183	728	0	1 206	49 843	369	165	0	0	0	534	4		1	
	Ngcobo	40 089	34 495	9 493	24 373	0	2 310	1	2 902	0	499	74 073	1 015	542	0	0	0	557			218	
	Uitenhage	25 708	25 212	741	3 534	0	257	34	904	0	8	30 690	0	0	0	0	0	0	0	0	0	
TOTAL EC		123 029	82 942	15 499	55 376	0	4 649	1 051	4 720	0	1 810	166 047	1 604	293	0	0	0	3	897	4	0	219
Total RSA		1 437 076	1 156 160	291 260	847 472	1 028	108 670	45 683	63 731	10 958	40 878	4 027 770	13 780	7 582	48	2 670	902	24 790	331	3 723	828	

Existing waste tyre network

The geographic distribution of the current waste tyre infrastructure network as registered with the WMB is depicted in Figure 1. The network is distributed throughout South Africa and is concentrated in Gauteng with some processing in North-West and Kwa-Zulu Natal and one plant per province in the Western Cape, Eastern Cape and Northern Cape.

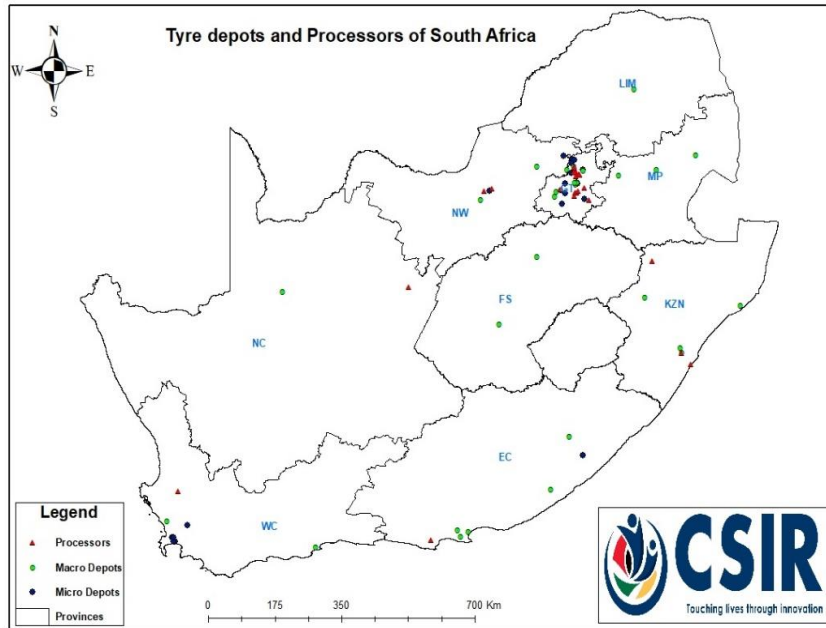


Figure 1: Waste tyre infrastructure network in South Africa, 2020

The relative distribution of the waste tyres is illustrated in Figure 2. The restrictions on the disposal of waste tyres to landfill in areas without sufficient coverage, add to the potential negative environmental impacts of waste tyres.

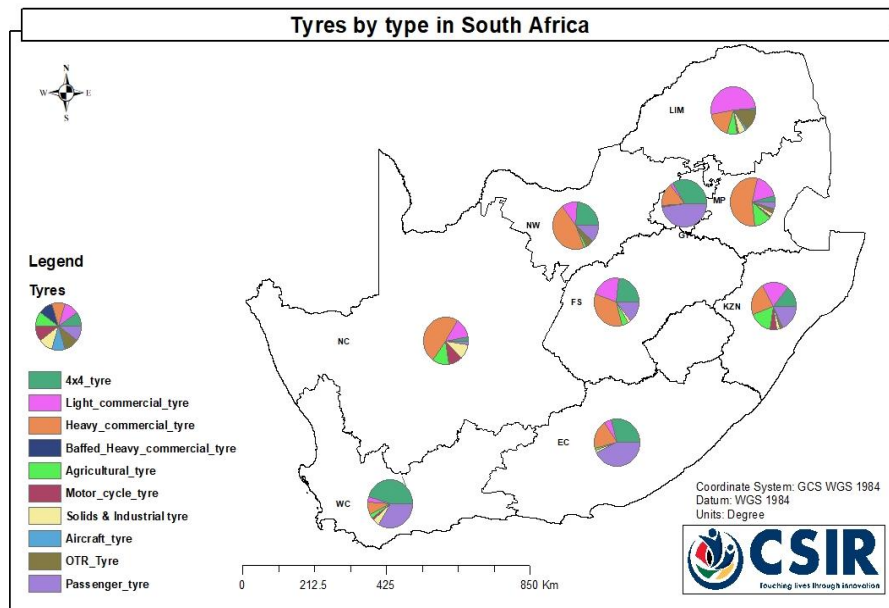


Figure 2: Geographic distribution of waste tyres by Type
Legal framework for managing waste tyres

Waste tyres are regulated under NEMA, NEM: WA, the NEM: WA: National Norms and Standards for Disposal of Waste to Landfill, 2013 and the NEM: WA: Waste Tyre Regulations, 2017. The Environmental Conservation Act, 1989 (Act No. 73 of 1989): Waste Tyre Regulations, 2009, banned the disposal of whole tyres to landfill from 30 June 2011 and quartered tyres from 30 June 2014; allowing only the disposal of shredded tyres to landfill. The NEM: WA: National Norms and Standards for Disposal of Waste to Landfill, 2013 introduced waste disposal restrictions on waste tyres prohibiting the disposal to landfill of whole and quartered tyres effective from August 2018. Failure to manage waste tyres as prescribed in the IndWTMP is a criminal offence in terms of section 67(1)(d) of NEM: WA and is punishable in terms of section 68(2) of NEM: WA.

The NEM: WA: Waste Tyre Regulations of 2017 outline a number of prohibitions on tyre management, as follows:

“No person may -

- a) manage waste tyres in a manner which does not comply to these Regulations;
- b) recover or dispose of a waste tyre in a manner that is likely to cause pollution of the environment or harm to health and well-being;
- c) dispose of a waste tyre at a waste disposal facility;
- d) recover any financial contribution in terms of a waste tyre management plan from a subscriber to the IndWTMP, unless authorised by law; or
- e) export waste tyres in whatever form unless the exportation of such waste tyres is authorised by the Minister in writing.”

Regulation 5(1) of the Waste Tyre Regulations, 2017, provides that the following persons must register with the WMB, in a format specified by the WMB:

- A tyre producer;
- A tyre dealer;
- A person in control of a collection point where waste tyres may be collected;
- A waste tyre stockpile operator,
- Waste tyre processors;
- An owner or operator of a waste tyre pre-processing facility;
- A waste tyre depot operator;
- A micro-collector of waste tyres;
- A waste transporter; and
- An owner or operator of a waste tyre storage site.

The registered role-players report to the WMB on a computerised monitoring and data-capturing programme, the intellectual Property (IP) of which rests with the WMB.

Section 2(4)(q) of NEMA provides that:

“The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.”

In addition, section 28(1) of NEMA provides that:

“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.”

An important provision that was subsequently inserted is section 28(1A) of NEMA, which provides that:

“Subsection (1) also applies to a significant pollution or degradation that— (a) occurred before the commencement of this Act; (b) arises or is likely to arise at a different time from the actual activity that caused the contamination; or (c) arises through an act or activity of a person that results in a change to pre-existing contamination.”

Section 24 of the Constitution, 1996, read with sections 2(4)(p), 28(1) and 28 (1A) of NEMA, introduces the polluter pays principle. In addition, it provides that the polluter pays principle will apply in respect of persons that have caused, are causing, or will cause pollution and degradation, even where the event occurred before the coming into force and effect of NEMA, and potentially provides for ongoing liability and responsibility, long after the event.

According to the Waste Tyre Regulations, 2017, the WMB is responsible to facilitate, supervise and control the management of waste tyres during the period where there is no approved IndWTMP in terms of section 28 or 29 of NEM: WA. Consequently, tyre producers must submit declarations on the quantities of tyres produced and imported to the WMB on a quarterly basis. The WMB must establish a waste tyre forum with all affected industry players to deal with the governance and operational matters pertaining to the management of waste tyres until the new IndWTMP is approved.

Waste tyre management model (2017-2021)

Waste Tyre Management

The WMB reported a year-on-year increase in waste tyre processing between 2017/18 and 2018/19 in all stages of the waste management hierarchy (Figure 3). The biggest increase was achieved in recycling (crumbing and pyrolysis).

Despite the increase, the figures were from a very low base, and the total for 2018/19 of approximately 50 000 tonnes remains far below the annual inflow of waste tyres. Consequently, serious concerns about the overall management of waste tyres remain to be resolved. Furthermore, heavy fuel oil derived from pyrolysis is considered a 'dirty' fuel and could be circumventing legislation on the use of waste tyres as a fuel (with strict emission limits) as the pyrolysis process has in effect rendered a "product" and not a waste.

South Africa has made significant Kyoto commitments while remaining dependent on coal for electricity generation. The use of waste tyres in cement kilns as TDF could help to meet South Africa's international commitments on greenhouse gas emissions while reducing waste tyre stockpiles.

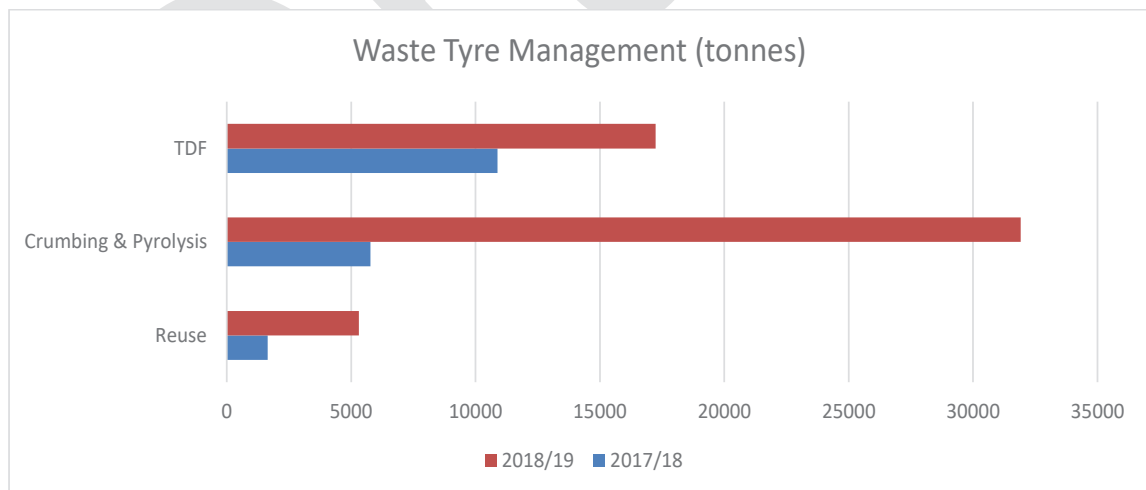


Figure 3: Waste Tyre Management in South Africa illustrated as Tonnes per annum (WMB, 2020).

Employment and SMMEs, 2020

Data on job creation and formal SMMEs as obtained from the WMB is provided in Table 3 and Table 4. The overall year-on-year growth in employment (10 jobs) and SMME development in waste tyre management is insignificant and not in support of the new growth path for South Africa.

Table 3: Jobs created and maintained in the waste tyre value chain (WMB, 2020)

Category	2018/19			2019/20		
	Created	Maintained	Total	Created	Maintained	Total
Transporters	102	395	497	65	442	507
Waste tyre storage sites	163	192	355	50	345	355
Waste tyre processors	69	156	225	33	176	225
Total	334	743	1077	148	963	1087

Table 4: SMMEs created in the waste tyre value chain

Stage in waste tyre value chain	2018/19	2019/20
Processors	12	3
Transporters	80	0
Secondary Industries	54	16
Micro Depots/cooperatives	18	0
Waste tyre storage sites	24	0
Total	188	19

Charges, 2020

The Customs and Excise Act, 1964 (Act No. 91 of 1964) (as amended) implemented an Environmental levy of R2.30/kg on tyres which is payable by manufacturers and importers to the South African Revenue Service (SARS). The levy is in support of re-cycling, and based on a logistics-cost recovery model and remained unchanged since its inception in 2012. SARS has been collecting the levy directly since 1 February 2017. The WMB accesses this funding through a budgetary allocation from National Treasury to pay for the collection, transport, and management of waste tyres at depots.

Financing of micro-collectors and micro depots, 2020

The remuneration model for micro collectors is R6.00 per tyre, with a monthly limit of 1000 tyres per micro collector; while micro depots are paid R6 000 per month plus additional incentives. The following additional incentives to micro depots apply:

- a) R50 per micro depot if at least five micro collectors drop off tyres at the micro depot, subject to each micro collector dropping off at least ten tyres and a minimum of two thousand tyres being collected at the micro depot during the month;
- b) A volume incentive paid per month as follows:
 - i. R1000 for 3000 to 4000 waste tyres collected

- ii.R1500 for 4001 to 5000 waste tyres collected
- iii.R2000 if more than 5000 waste tyres are collected

Although the monthly limit imposed on micro collectors limits the growth potential of micro collectors, it is required to enable the WMB to manage payments within their allocated budget.

Financing of waste tyre depots, 2020

Depots are being financed on a cost recovery basis with no profit generation mechanisms. The current depot contracts stipulate the type of expenses that should be incurred based on depot operations. The approved budget is included in the service level agreement between the depot and the WMB. The level of detail contained in these contracts is problematic, as it does not allow for any flexibility of cost allocation between different budget line items. Due to this cost recovery payment method many depots have fallen short on their monthly expense obligations, with many not being SARS compliant due to not paying their respective taxes.

A further complication is that pre-processing machines are owned by the WMB or another third party. The machines are moved around between depots, leaving depots without a means to pre-process or bale the tyres in their control thus resulting in ineffective management of tyres at depots.

An option to manage waste tyre depots on a profit seeking basis is provided in Section 2.7.

Financing of transporters, 2020

Primary transporters receive payment based on the tonnage transported multiplied by the rate (determined by the average monthly distance travelled and the size of the vehicle). Secondary transporters are compensated based on the travel distance between waste tyre storage sites and waste tyre processors.

Financing of waste tyre processors, 2020

Contracted waste tyre processors receive waste tyres delivered to their gate fully subsidised (i.e. at no cost to the processor). In addition, a stipulated processing fee (R0.31/kg) is paid by WMB for every tonne of waste tyres processed, to all qualifying waste tyre processors.

Prominent role-players include the following stakeholders:

The Tyre Industry

- Manufacturers
- Importers
- Dealers (represented by TEPA, an association with the greater RMI)

All users of new tyres (consumers) who generate waste tyres:

- General public
- Government services
- Mining
- Agriculture
- Transport
- Manufacturing (OEM vehicles)

All entities playing a role in the waste tyre value chain:

- Vehicle dealerships
- Fitment centres
- Waste tyre collectors and transporters
- Waste tyre processing companies
- Users and consumers of waste tyre products (cement kilns and other TDF users, road construction, ports, racing track builders, primary schools, crèches, furniture/crafts manufactures, farmers/feedlot operators, other).
- Informal sector collectors and second-hand tyre dealers

Research institutions, including:

- Universities
- Science Councils
- Chemical industry

Overview of waste tyre processing and off-take markets

Advancements in the technology behind various recovery methods increasingly enables more effective conversion of waste tyre to a broader range of energy and material applications. Waste tyres are a valuable resource. With the legal prohibition of disposal of waste tyres to landfill, South Africa has an opportunity to utilise this resource by establishing a waste tyre processing industry in the country. However, reliable information on the state, upcoming initiatives and projects regarding waste tyre processing in South Africa is not forthcoming. This is mainly due to uncertainty associated with the management of waste tyres and the need for private sector players to keep any market information (including business plans) confidential, in order to safeguard, their competitive advantage, until the IndWTMP has been approved. The IndWTMP will, if implemented correctly, create the necessary economies of scale and surety in the supply of waste tyres, which will create the required platform for the development of a waste tyre processing industry in South Africa. The aforementioned information regarding waste tyre processing will then start to enter the public domain

The international experience points towards four main technology options for waste tyre processing, namely:

- Energy recovery (TDF)
- Pyrolysis
- Material recycling (crumbing)
- Product recycling (reuse)

Re-treading is not considered an “end-of-life” use for tyres and hence is not considered a technology option for waste tyre processing.

The following sections present some basic background information on each waste tyre processing technology, based on international experiences. The feasibility of each technology in the South African context needs to be assessed by means of a detailed pre-feasibility study.

Trends in South Africa

In 2018/19, approximately 54 460 tonnes of waste tyres were processed through these different technology options in South Africa. Figure 4 shows the trend in waste tyre processing since 2015 in South Africa.

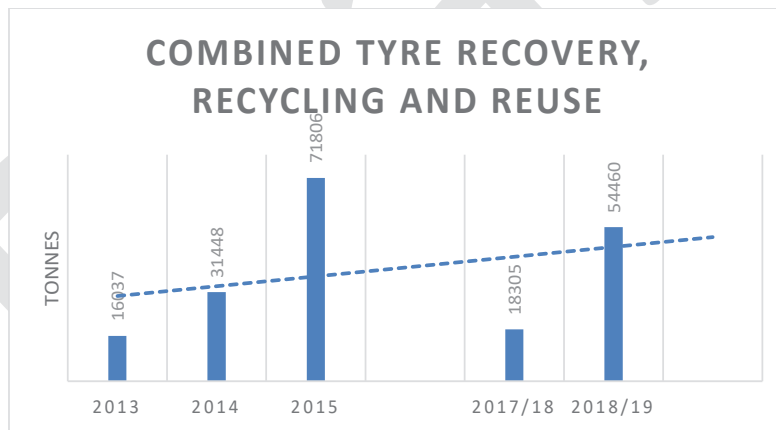


Figure 4: Trend in waste tyre processing since 2015 in South Africa

The tonnages processed through each technology option in 2018/19 were as follows (see also Figure 5)

- Energy Recovery (TDF): 17 243 tonnes
- Crumbing and pyrolysis combined: 31 911 tonnes
- Product Recycling (Reuse): 5 306 tonnes

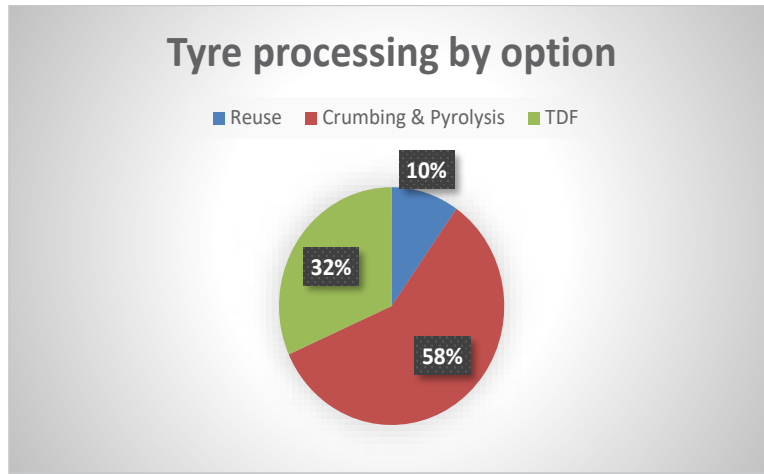


Figure 5: Percentage of tyres processed by technology option in 2018/19 in South Africa

Draft



Figure 6: Predicted tyre recycling downstream products market (<https://www.transparencymarketresearch.com/tire-recycling-downstream-products-market.html>)

Predicted global tyre processing downstream product markets

Transparency Market Research predicts notable growth in the global tyre recycling downstream products markets. The drivers for the growth in the market include technological advancements and the need to create a sustainable future for the tyre industry. Crumbed rubber concrete, where the rubber is shredded into small particles with similar consistency as sand, is a case in point, which is expected to have increased applications in the construction industry. Mixing of crumbed rubber with concrete instead of sand, serves as an environmentally friendly alternative for the construction of residential buildings, roads and other infrastructure.

Publicly available predicted global downstream products markets (2019-2027) is illustrated in Figure 6. However, a more detailed literature review is required to verify these projections.

Energy recovery (Tyre derived fuel)

The international literature denotes fuel consisting of partly of fully shredded tyres as TDF (tyre derived fuel). Tyres typically have a calorific value of 32 MJ/kg, (Table 5) which compares well with other types of fuel, especially with coal. Energy recovery in the form of utilising waste tyres as a fuel source presents a seemingly obvious waste tyre processing solution for South Africa given the country's dependence on coal. However, the viability of this technology option needs to be verified for the South African context by means of a pre-feasibility assessment prior to incentives being developed. In addition, an assessment of the need for retrofitting to allow TDF to be used in current available technologies in South Africa is also required.

Internationally, the cement industry is one of the biggest consumers of whole, partly or completely shredded tyres as TDF. It has been shown that the high temperatures in cement kilns (>1200° C), ensure the complete combustion of a tyre. The ash and steel cord are permanently bound to the clinker and does not seriously impair its physic-chemical properties apart from a slightly longer cement binding time and a slightly greater water demand. The combustion of tyres in cement kilns could be cleaner compared to coal with suitable scrubbing, but this along with a ratio for potential co-firing will need to be verified for South Africa.

Apart from the cement industry, TDF may also serve the brick-making and power generation industries due to expected improvements in the thermal efficiency of furnaces and steam boilers when co-firing coal with ground rubber wastes. Last mentioned needs to be verified for South Africa.

Table 5: Typical calorific values of tyres compared to other types of fuels

Fuel	Energy (Gigajoule/tonne)	Emissions	
		kgCO ₂ /tonne	kgCO ₂ /Gigajoule
Tyres	32.0	2 270	85
Coal	27.0	2 430	90
Pet Coke	32.4	3 240	100
Diesel oil	46.0	3 220	70
Natural gas	39.0	1 989	51
Wood	10.2	1 122	110

“TDF can be used successfully as a 10-20% supplementary fuel in properly designed fuel combustors with good combustion control and add-on particulate controls, such as electrostatic precipitators, or fabric filters. Furthermore, a dedicated tire-to-energy facility specifically designed to burn TDF as its only fuel has been demonstrated to achieve emission rates much lower than most solid fuel combustors”.

EPA Research Paper, Air Emissions from Scrap Tire Combustion, 1997

Pyrolysis

The pyrolysis of waste tyres decompose rubber elastomers at temperatures between of 400–700 degrees Celsius, in the absence of oxygen. The process requires specialised pyrolytic furnaces, which depending on the technology employed, can operate at normal or reduced pressure, in an atmosphere of a neutral gas (mainly nitrogen).

The pyrolysis of tyres provide several chemical compounds in solid, liquid and gaseous form, which after processing can be used in the petrochemical, energy or iron and steel industries. For example,

the solids from tyre pyrolysis include fly ash, soot, the charred remains of the oxides and sulphides of zinc, silica and steel. The gasses contain hydrogen, carbon monoxide and dioxide, aliphatic hydrocarbons and hydrogen sulphide. Liquids includes aromatic hydrocarbons and oils with a high calorific value, which on removal of contaminating sulphur compounds, are usually mixed with diesel oils and other petrochemical products. However, the capital outlay and high operating cost of these processes on commercial scale along with subsidies on fossil fuel has hampered viability and is the main reason why pyrolysis of used tyres is rarely used on industrial scale. Nevertheless, ongoing research to improve efficiencies and mounting costs of fossil based energy and petrochemical raw materials is gradually increasing the competitiveness of this technology.

Product recycling (Reuse)

Product recycling involves the complete or partial use of tyres (in their original form) for another purpose without any physical or chemical treatment. Because of its shape and sizes, high elasticity, good damping properties of vibrations, noise and shocks, tyres are used in construction, protective barriers along roads and waterfront banks, artificial reefs, road substrates and insulation for foundations. Other uses include playgrounds and park applications. Product recycling (reuse) remains a comparatively small component of waste tyre processing industry.

Material recycling (grinding and devulcanization)

Material recycling, including crumbing, is a popular means of managing used tyres. It consists mainly of mechanical grinding and devulcanization and produces several useful products. Separation of rubber, steel belts and textile overlays on tyres is costly, but once separated the materials can be reused. Several industries use rubber crumbs in various grain sizes, the steel is sent for smelting, whereas the textile cord, after cleaning up, is either combusted as recovered energy or used to produce thermal insulation materials for the construction industry.

Devulcanization decompose vulcanized natural rubber, by breaking down the poly-, di- and monosulphur cross-linking bonds formed during the original vulcanization process. Devulcanization degrades the chains in natural rubber polymer, which means that regenerated rubber loses some of the properties of natural rubber. Regenerated rubber is used by the rubber industry as additives to rubber mixtures, cable housings, rubber mats and slabs, and footwear.

Comment on the potential to manage depots on a profit-seeking basis

The structured approach to depot management applied by the WMB derive from the need to maintain fiscal discipline with a budgetary regime under National Treasury. The WMB therefore need to maintain control over expenses. However, the depot is the point where waste tyres change to an input stream for processors and therefore warrants further consideration.

Operating depots on a profit-seeking basis implies the following:

- Depots will need to do some form of value adding to create a competitive base for profit seeking.
- Increase the management autonomy of depots to full independency.

Value adding at depots can be done in the form of limited pre-processing of waste tyres as determined by each of the four mainstream waste tyre processing technologies (energy recovery, pyrolysis, material recycling and product recycling).

The type of pre-processing done at any particular depot will be determined by the type of client (mainstream technology group) the depot is supplying. The requirements for accepting waste tyres could differ across the four mainstream waste tyre processing technology groups. Such differences allow for commodity differentiation (and consequent price differentiation) for each mainstream technology. The Implementer(s) needs to consult with representatives of each mainstream technology and determine the commodity requirements for uptake in their technology. The WMB then formulate the requirements into a commodity specification for each mainstream technology. The commodity specification will then be used to do a costing of the commodity which then creates the basis for commodity pricing. It should be noted that the price for the waste tyre itself will remain nil, but the pre-processing (i.e. value added services) will require cost recovery, including a fair markup. This information can then be used to define a standardized commodity for each mainstream technology in terms of format (quarter cut, shredded, baled etc), size / weight, and associated price.

Profits could be realized if the depot can supply the commodity at a lower cost to their clients than the commodity price set by the WMB.

Depots receive payment from the WMB via a claims-based system. All claims need to be verified via a delivery note from the client who only issue said note upon acceptance of the commodity. Quality control is the responsibility of the client. Although the WMB set the rates for each commodity, the notion of "capped profits" is strongly discouraged as this will create adverse incentives and will be exposed to rent-seeking with the resulting risk of audit findings. The WMB should therefore not cap or limit the volumes of waste tyres processed by depots, i.e. depots should be allowed to process as much waste tyres as they can.

Such an arrangement contains the basics for a profit-seeking enterprise.

Industry Waste Tyre Management Plan

Vision

A South Africa free of negative environmental impacts of waste tyres.

Mission statement

To realise the economic potential of waste tyres in the circular economy by moving waste tyres up in the waste management hierarchy.

Guiding Principles for the IndWTMP

Guiding principles for the implementation of the IndWTMP are:

1. The Department through the WMB is the custodian of the IndWTMP.

2. The WMB must monitor and oversee the implementation of the IndWTMP and the Implementer(s) provide regular reports on the implementation thereof to the WMB and/or to the Department.
3. One or more Implementer, depending on the feasibility thereof, must be appointed on contract through an open tender by the Department and/or the WMB.
4. Once the Minister has approved the IndWTMP and an Implementer or Implementers are thereafter appointed by the WMB, the Implementer(s) must submit an annual business plan and budget to the WMB and the Department, which annual business plan and budget must be approved by the WMB and the Department before implementation.
5. Funding for the implementation of the IndWTMP will be through a budgetary allocation from National Treasury that will be disbursed through the Waste Management Bureau and/or the Department in accordance with section 34E(1)(a) of NEM: WA.
6. The approved business plan and budget of the Implementer(s) will derive from the extent of the services to be provided by the relevant Implementer(s) and the targets to be met; and payments for services rendered.
7. Industry involvement in the implementation of the IndWTMP must be through an IAC as outlined in item 0.
8. The IAC must be consulted on at least at a quarterly basis throughout the implementation of the IndWTMP to ensure achievement of the set targets.
9. Responsibilities and roles of each stakeholder along the waste tyre product life cycle must be clearly defined.
10. The implementation of the IndWTMP must be open and transparent through reporting to the IAC and the WMB.
11. Environmentally sustainable management of waste tyres must be ensured.
12. The principles of "polluter pays" must be enforced.
13. Economic and cost efficiency.
14. The WMB, the Implementer(s), and obligated industry (manufacturers and importers) are co-responsible for monitoring and surveillance of this IndWTMP.

Objectives and Priorities for the Waste Tyre Sector

Strategic objectives

The objectives of the IndWTMP are to:

1. Establish a viable waste tyre processing sector in South Africa which will reduce the negative environmental impacts of waste tyres and support enterprise development and job creation in a circular economy.
2. Expand the waste tyre processing capacity of South Africa;
3. Develop monitoring systems to ensure transparency and to support legitimate claims for waste tyres collected and/or processed in terms of progress against targets.

It is important to track progress against the objectives of the IndWTMP. Measurable targets for selected performance indicators such as waste tyre processing/recycling (refer to

Table 6) must be implemented to measure progress against the objectives of the IndWTMP.

Other performance indicators including, but not limited to SMME development, job creation, incentives provided to different stakeholder groups, and skills development/training provided must also be applied.

Objective 1: Establishment of a viable waste tyre processing sector

Increasing the accessibility and the subsequent supply of waste tyres to processors to support the viability of the waste tyre processing sector. This must be achieved, amongst others, through:

- a) increase surety of supply contracts to waste tyre processors to support investment in the sector;
- b) support investment in pollution abatement technologies, and equipment through incentives on a cost sharing basis;
- c) supply pre-processed waste tyres to waste tyre processors including the cement and brick industry;
- d) payment of incentives in the form of a processing fee on a case-by-case basis to waste tyre processors, including the cement and brick industry; and
- e) support for development of markets for processed waste tyre products

The establishment of such a sector must reduce the negative environmental impacts associated with improper handling, storage and disposal of waste tyres, while providing opportunities for labour intensive enterprise development. Environmental performance targets must relate to increased processing and recycling rates and auditing of environmental performance and legal compliance at all facilities.

The Department must establish an independent evaluation committee with representation by the DTIC to evaluate the expressions of interest received from waste tyre processors.

Conditional upon the written authorisation of the Minister, the export of waste tyres, as provided for in the Waste Tyre Regulations of 2017, may be considered to free-up storage space at waste tyre storage sites while local processing capacity is developed. Such measure may be required until the waste tyre processing industry can absorb the annual national supply of waste tyres. However, as the waste tyre processing industry develop the annual supply of South African waste tyres may become inadequate for the processing demand. The possibility of importing waste tyres from neighbouring countries should be considered to stimulate growth in the processing industry. It is important to recognise that the growth and viability of the South African waste tyre industry will be severely limited if the growth of the industry is capped by national supply of waste tyres.

Objective 2: Expand the waste tyre processing capacity of South Africa

The 2020 tyre processing rates of approximately 20% per annum must significantly increase year on year to achieve the Vision and Mission of the IndWTMP. The Implementer(s) in collaboration with industry is responsible for creating additional processing capacity by upscaling or increasing capacity of existing processing facilities where feasible; and establishing new processing capacity. This will be supported through:

- a) incentives developed by the Department and disbursed by the WMB including, but are not limited to:
 - i) Subsidies for plant establishment, equipment upgrades, and
 - ii) Grants on a cost-sharing basis.
- b) establishing a forum to support accessing international investment opportunities;
- c) providing binding supply contracts (7-10 year) between the Implementer(s) and waste tyre processors to support investment in the sector;
- d) creating pre-processing capacity at waste tyre storage site or depot;
- e) subsidised delivery of waste tyres or pre-processed waste tyre materials to processors;
- f) payment of a processing fee to all waste tyre processors, including the cement and brick industry;
- g) capacity building, mentoring and training programmes aimed at new business development in waste tyre processing targeting SMMEs and designated groups; and
- h) investment in research, development and innovation in waste tyre management.

The Department in consultation with WMB, DTIC, National Treasury, the Implementer(s) and the IAC must co-develop incentives and qualifying criteria, including but not limited to tyre processing capacity, job creation, economic impact, etc. An incentives evaluation committee must be established by the WMB within three months of the implementation of the IndWTMP to evaluate applications. The implementer(s) must budget for incentives as part of their business plan submitted to the WMB.

The incentives evaluation committee will comprise of representatives from the following organisations;

- i) 2 officials from CWM branch of the Department
- ii) 1 official from WMB
- iii) 1 official from DTIC
- iv) 1 representative from the IAC

The committee must report progress quarterly to the WMB.

The stipulated processing fee must be adjusted annually in line with inflation.

Targets for waste tyre processing and reduction in stockpiles are set as follows (base year is 2023):

- i) Processing/recycling of 25% by 2024, 30% by 2025, and 80% by 2035 of the annual inflow of waste tyres, and
- ii) 20% reduction in current stockpiles in 2023, 40% reduction in 2028 and 90% reduction in 2038 as outlined in

iii) Table 6.

Performance indicators for waste tyre processing must include but are not limited to:

- iv) Rand/waste tyre managed (covering the entire value chain from collection to final processing);
- v) Percentage reduction in stockpiles;
- vi) Percentage of new inflow of Waste Tyres processed;
- vii) Percentage contribution of waste tyre processing to the South African economy; and
- viii) Number of permanent employment positions created per thousand tonnes of waste tyres processed.

Total employment opportunities to be achieved in the sector by 2025 is 1 500 jobs and 2000 jobs by 2035.

Above-mentioned define the scope of the waste tyre processing industry in South Africa. It should be mentioned that the inclusion of a "stockpile-reducing-target" will lead to a situation where process capacity roughly equals annual inflows by 2030. Said capacity of approximately 317 059 (see Table 1) will be close to the annual inflow of waste tyres in 2038, which implies that total processing capacity is bigger than annual inflows in order to decrease stockpiles until the stockpile target is reached in 2038. Consequently, the possibility of utilising legacy stockpiles or importing waste tyres from 2039 onwards to ensure that investors will not start exiting the industry in 2040 onwards should be seriously considered.

Table 6: Projected targets for increased processing and reduction of stockpiled waste tyres in South Africa

year	Indicative annual inflow of new waste tyres (tonnes) ^b	Processing target for the annual inflow of waste tyres	Indicative Tonnes of new inflows to be processed	Tonnes of new inflows that will still go to stockpile	Stockpile if nothing is done to reduce the stockpile (tonnes)	Indicative Tonnes of stockpile to be processed to reach targets ^c	Indicative total amount of tyres to be processed to reach targets (tonnes)	Stockpile if everything goes according to plan (tonnes)
2023	250000 ^a	20%	50000	200000	1100000	0	50000	1100000
2024	253750	25%	63438	190313	1290313	96044	159481	1194269
2025	257556	30%	77267	180289	1470602	109464	186730	1265095
2026	261420	35%	91497	169923	1640525	122112	213609	1312906
2027	265341	40%	106136	159205	1799729	133962	240098	1338148
2028	269321	45%	121194	148127	1947856	144988	266182	1341287
2029	273361	50%	136680	136680	2084536	155161	291842	1322806
2030	277461	55%	152604	124858	2209394	164455	317059	1283208
2031	281623	60%	168974	112649	2322043	172840	341814	1223017
2032	285847	65%	185801	100047	2422090	180287	366088	1142777
2033	290135	70%	203095	87041	2509130	186766	389861	1043052
2034	294487	75%	220865	73622	2582752	192246	413111	924428
2035	298905	80%	239124	59781	2642533	196696	435819	787513
2036	303388	85%	257880	45508	2688041	200083	457963	632938
2037	307939	90%	277145	30794	2718835	202375	479520	461357
2038	312558	95%	296930	15628	2734463	203538	500469	273446

Notes:

^a As per Item 2.1

^b Assuming a conservative growth rate of 1.5% per year.

^c The target is based on 900000 tonnes of stockpiled tyres (this includes all stockpiled tyres as stipulated in appendix C.) and present the basis for calculating the overall target for reductions in stockpiled waste tyres.

The anticipated increase in waste tyre processing capacity over time in line with achieving the targets in is illustrated in Figure 7.

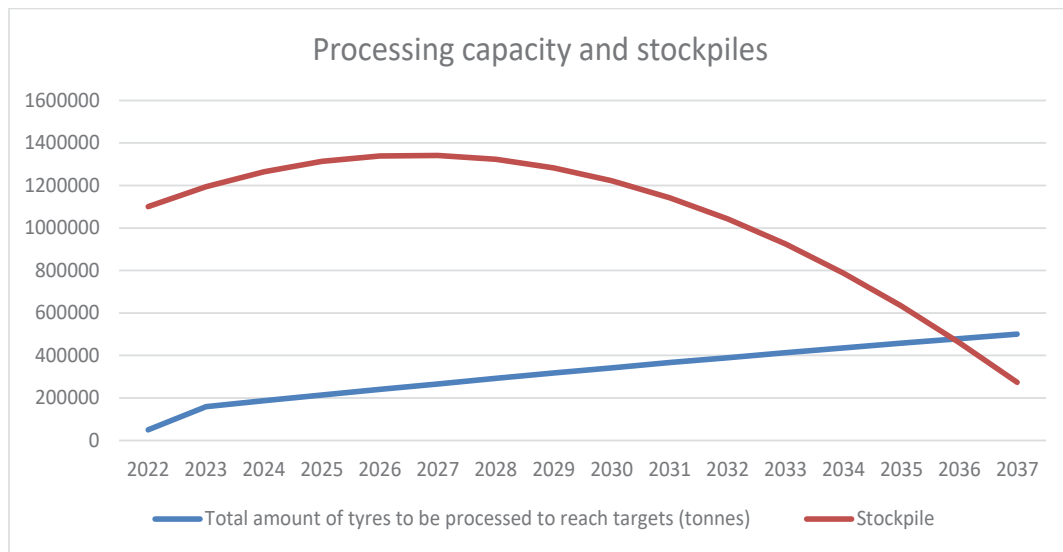


Figure 7: Increase in processing capacity and decrease in stockpiles over time

Objective 3: Develop systems to monitor progress and performance

Apart from standard financial auditing, the following indicators must be monitored by the Implementer(s) on a monthly basis and reported to the WMB and/or the Department and IAC (refer to item 0) at least quarterly:

- a) Number of waste tyres in stockpiles (% reduction in backlog over time);
- b) Tonnage of waste tyres collected and processed by waste tyre processing companies (WTPCs);
- c) Number of new enterprises active in waste tyre processing (SMEs registered with the DTIC);
- d) Environmental performance and legal compliance; and
- e) Employment and sustainability of enterprises (Retention of enterprises over time).

Failing to meet the reporting requirements in terms of this item constitutes an offence and may attract a penalty and remedial intervention in terms of NEM: WA by the WMB. Furthermore, any deficiencies or inaccuracies identified with the reporting and monitoring must be addressed by the Implementer(s) within 7 business days upon receipt of feedback from the WMB and IAC.

Measures to prevent pollution and ecological degradation

The extent and quantity of pollution associated with tyres depends on the use efficiency and the fate of end-of-life waste tyres.

The Implementer(s) must budget for and implement the following measures to prevent environmental pollution and ecological degradation associated with waste tyre management IndWTMP:

- Ensure that no waste tyres end up in illegal markets or in the environment;
- **Ensure that tyre manufacturers and dealers** conduct awareness raising campaigns targeting consumers on the proper care and efficient use of tyres to extend their useful life;
- Must conduct awareness raising campaigns by targeting all role-players as outlined in item 3.7.5. Awareness campaigns must also include information on the impact of the waste tyres on the environment. These may take the form of webinars, information sessions and/or advertisements on official and social media;

- **Ensure that waste tyre processors** submit a proposal to the Implementer(s) which includes, a feasibility study report on environmental performance and evidence of pollution prevention measures such as eco-efficiency, cleaner production, and design for the environment;
- Must apply incentives referred to in item 3.4.3 to the upgrading of pollution abatement equipment of waste tyre processors; and
- Monitor and report non-compliances of the different role players of the IWMP, which is a criminal offence in terms of section 67(1)(d) of NEM: WA to the WMB

Measures to be taken to manage waste tyres

The IndWTMP will put the following measures in place to ensure proper management of waste tyres:

- a) Classification and mutilation of waste tyres by tyre dealers as described in section 6(2) of the Waste Tyre Regulations, 2017;
- b) Record keeping and reporting of the movement of Waste Tyres between all role players;
- c) Coordination of waste tyre logistics with technical advice provided by the IAC and with oversight from the Department;
- d) The establishment of a viable waste tyre processing industry in South Africa in coordination with the independent evaluation incentive committee; and
- e) The creation of markets for waste tyres and products from waste tyre processing.

The duties of the different role players for the implementation of these measures are outlined in item 5.

Priority areas for interventions

Reducing the environmental impact of waste tyres management

Interventions to reduce the environmental impact associated with waste tyre management must focus on creating effective collection mechanisms and increasing the waste tyre network coverage across South Africa and transitioning to green technology options for the processing of waste tyres.

Specific interventions must include, but are not limited to:

- a) Strengthening micro-collector networks in areas where there is insufficient coverage;
- b) Adopting all areas where large quantities of waste tyres are generated on a regular basis (e.g. mining sites, industrial sites, transport company depots, and tyre dealers) as collection points.
- c) Ensuring an efficient collection system for waste tyres through effective logistics management;
- d) Supporting investment in pollution abatement technologies and equipment through incentives funded from the tyre levy; and
- e) Supporting research, development and innovation towards improved waste tyre collection, recycling, re-use and recovery.

Incentives for establishing a waste tyre processing industry

The objective of the IndWTMP is to improve the waste tyre processing capacity of South Africa via the development of associated value chains and off-take markets for waste tyre products in the shortest

time possible. The purpose of financial incentives for the waste tyre industry is to address financial shortfalls within the sector and to stimulate the development of the waste tyre-processing/pre-processing sector in line with the national government priorities for growing the economy.

The application process must be clearly outlined and supported by government, and applications evaluated by an incentive evaluation Committee established by the WMB. Incentives must be disbursed by the Implementer(s) from the budgetary allocation received from the WMB (section 34D(c) of NEM: WA).

Incentive schemes developed for the waste tyre industry must therefore include, but not be limited to:

- a) Black economic empowerment in terms of Broad based Black Economic Empowerment Act 53 of 2003 to support increased participation of previously marginalised citizens and regions;
- b) Strategic partnership programme;
- c) Waste Tyre Processing support scheme;
- d) Support programme for innovation in the waste tyre sector; and
- e) Support scheme for development of new emerging waste tyre processors.

Incentives must be used as “enablers” to overcome key obstacles at the onset of developing the industry. It is therefore critically important to note that the financial viability of businesses must not depend solely on incentives.

Improved data and information

Appropriate mechanisms and indicators must be established by all role players in the industry throughout the value chain to monitor implementation and to support the reporting of accurate data from the tyre industry on waste tyres recovered, recycled, treated, or disposed into the South African Waste Information System (SAWIS) as described in item 7.

Waste tyre storage site locations

Many of the negative impacts associated with waste tyres are associated with stockpiling. The vision of the IndWTMP is a South Africa free of negative environmental impacts of waste tyres. Stockpiling of waste tyres must therefore be prevented as far as reasonably possible. However, limited stockpiling is inevitable due to the workings of the waste tyre processing sector and variances in market dynamics of off-take markets for waste tyre derived products.

There is thus a requirement to secure waste storage sites with pre-processing. The Implementer(s) must conduct an audit of existing waste storage sites to inform their decision on which storage sites must be retained and where new waste tyre storage sites must be sourced. Issues that must be considered when waste tyre storage sites are identified include, but are not limited to:

- a) Current contracts of storage sites must be honoured and allowed to run their full contract period;
- b) The current general waste infrastructure network with a view to utilise services of integrated waste facilities;
- c) Pre-processing efficiency and consolidation of land access with the waste storage site;
- d) Distance between waste tyre generators, depots/storage sites, and waste tyre processors;
- e) Appropriate zoning of land for these activities;

- f) Associated road infrastructure for access to the sites; and
- g) Licencing requirements in terms of the NEM: WA and other relevant legislation.

The Implementer(s) must secure waste tyre storage sites by following an open and fair procurement process.

The Implementer(s) must oversee the identification and management of suitable waste tyre storage sites. The location needs to be established or confirmed (it could be the same location as current waste tyre storage sites) on an individual basis. Each waste tyre storage site must be secured by means of a contract or cession of an existing contract from the WMB, with the Implementer(s), in order to provide stability and assurance of waste tyre removal from dealers and consequently supply of waste tyres to waste tyre processors.

Capacity building

Capacity building include physical infrastructure and human capacity development.

The establishment of physical infrastructure for waste tyre management in line with the IndWTMP may require special effort by all relevant government departments to support applicants through environmental and other authorisation processes. This may be achieved through targeted workshops and information sessions facilitated between government and the Implementer(s).

The Implementer(s) must develop annual human capacity building programmes within one year of the appointment of the Implementor with targets covering aspects of training, mentoring and practical experience at all stages of the waste tyre value chain. A national skills development framework for waste tyre management must be developed by the Implementor, covering the entire waste tyre value chain targeting skills development to facilitate career and business growth. The focus must be on SMME development with a focus on business growth and possibly diversification into processing within the waste tyre value chain.

Holistic planning

Efficient waste tyre management as envisaged in the IndWTMP can only be achieved through holistic planning. Holistic planning must incorporate environmental management considerations into the development of policies, strategies, programmes, spatial and economic development planning processes, and all economic activities. The environment is a platform where management and planning must consider the complexity and interconnectedness between the economy, society and all ecological aspects as a system.

Waste tyre management model adopted by this IndWTMP

Introduction

One of the most effective ways of realising value from waste is to transform it into a product for which a demand already exists or to create such demand, i.e. to create a circular economy. According to the waste hierarchy (Figure 8), waste tyres must be recovered, recycled, and repurposed, and reintroduced back into the economy as different products. This section presents an overarching

approach serving this objective, within the current legal framework provided by NEM: WA, through the Waste Tyre Regulations, 2017, as follows:

- a) The implementation of the IndWTMP will be funded through a budgetary allocation by the Department and disbursed through the WMB as stipulated in section 34D (c) of NEMA;
- b) Legacy stockpiles (pre-30 November 2012) must be managed according to approved waste tyre stockpile abatement plans.
- c) Industry must be involved in the implementation of the IndWTMP on an ongoing basis through the IAC established by the WMB;
- d) Waste tyres must be made available free of charge to WTPCs (i.e. the Implementer(s) may not charge for waste tyres as delivery will initially be subsidised). This situation must be reviewed on an annual basis in consultation with the IAC;
- e) Implementer(s) of the IndWTMP must be appointed on contract following a tender based approach by the Department; the procedures must be governed by the Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000) and the Public Finance Management Act, 1999 (Act No. 1 of 1999), and
- f) Implementation contracts must be fixed term contracts with annual performance criteria clearly outlined.

The tyre management model is illustrated in Figure 9.

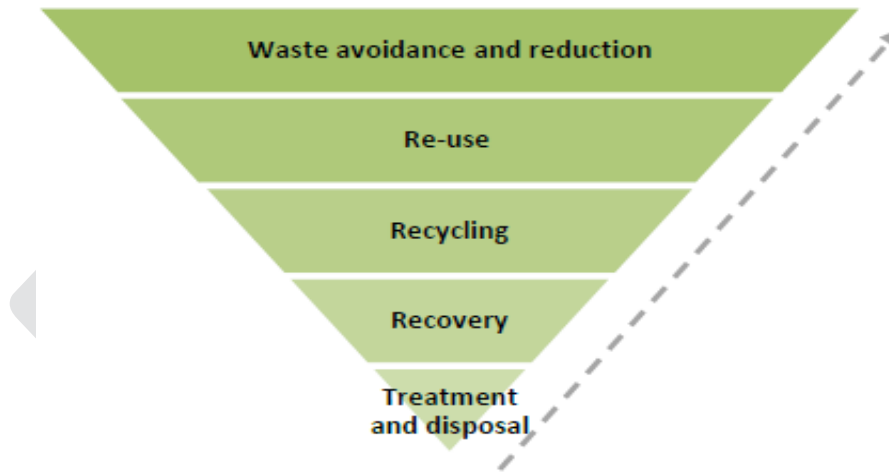


Figure 8: The Waste Management Hierarchy

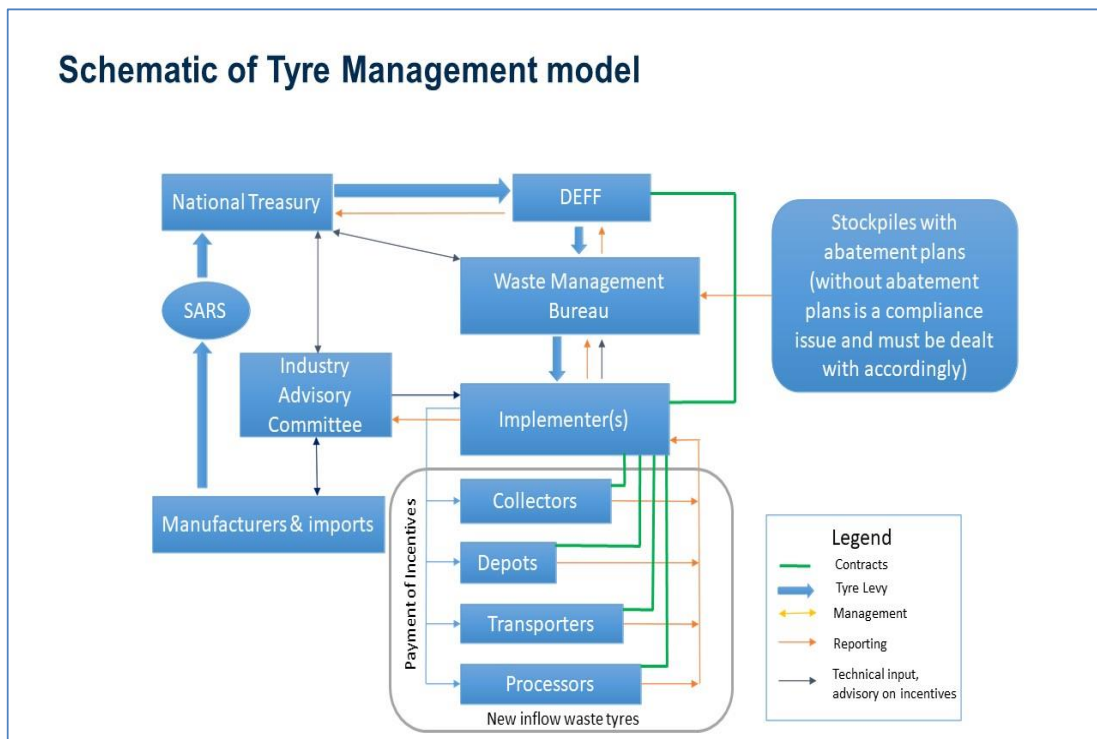


Figure 9: Schematic illustration of the tyre management model

The need for an Industry Advisory Committee

An Industry Advisory Committee (IAC) must be established by the WMB soon after the approval of IndWTMP to support the implementation of the IndWTMP. The role of the IAC is to collaborate with the Implementer(s) to ensure the effective management of waste tyres in line with the objectives of the IndWTMP and the achievement of the targets. As advisory committee, the IAC must be a voluntary, consultative and discretionary forum with no legal powers.

Members of the IAC must include, but not be limited to:

- a) Tyre Industry Associations i.e. TIASA, RMI/TEPA, SATMC, etc.
- b) Black Business Council
- c) National Treasury
- d) SALGA
- e) RASA
- f) Industry representatives from waste tyre processing companies

The need for the Implementer(s)

One of the guiding principles of the IndWTMP (refer to item 3.3) is that, while the Department remains the custodian of the IndWTMP, the WMB must play a monitoring/oversight role and not an operational role in waste tyre management in South Africa. Appointment of the Implementer(s) must

be mindful of the complexity of waste tyre management in South Africa and aim to simplify logistics while limiting duplication of functions and costs.

Approach for dealing with the annual waste tyre-stream

The aim is to balance the inflow of waste tyres with the processing of waste tyres. The net effect would be that Waste Tyres are being recycled at the same rate as new tyres coming into the market.

This approach requires the following:

1. The Implementer(s) must meet with the IAC at least on a quarterly basis and report to the WMB;
2. Tyre manufacturers/importers charge an Environmental levy on tyres being sold to their clients (tyre dealers/transport companies/mines). In the case of tyre-dealers, the invoice issued to clients must indicate that an environmental levy is charged on their tyre bill.
3. The Environmental levy is paid by the manufacturer/importer to SARS. The Implementer(s) access this funds through a budgetary application to the WMB. Audited financial statements must be made available for public scrutiny;
4. Waste tyres must be classified by Tyre Dealers who continue to mutilate scrapped tyres as per the Waste Tyre Regulations, 2017;
5. Tyre transporters collect waste tyres from dealers and transport the waste tyres to waste tyre storage sites as identified by the Implementer(s). Monthly limitation or cap on the volume of waste tyres collected and transported may be applied in line with the projected processing targets (e.g. the current limitation of 1000 tyres per month per micro collector falls away);
6. The Implementer(s) must devise a waste tyre payment structure to replace the current flat-rate transport rate per ton. Payment of transporters must consider both tonnage and distance travelled;
7. Tyre dealers, mines, transport companies and farms who buy directly from manufacturers/importers or who import directly, must be registered as collection points with the WMB; and
8. Compulsory on-site pre-processing must be done at waste tyre storage sites specifically aimed at decreasing transport costs and to minimise the transportation of waste tyres between collection points. The Department must in collaboration with the Implementer(s) and WMB design suitable incentives for such pre-processing.

Approach for dealing with waste tyre stockpiles

This component of the IndWTMP targets the stockpiled waste tyres. It aims to significantly decrease negative environmental impacts associated with stockpiled waste tyres by 2040.

The approach requires the following:

1. The WMB must undertake an audit of stockpiles of waste tyres to confirm current locations, owners and volumes of stockpiled waste tyres before the IndWTMP is implemented. This will ensure that there is proper hand-over between the WMB and the Implementer(s) and no disputes that can surface at a later stage;
2. Incentives may be used to facilitate collection by WTPC's;

3. Compulsory on-site pre-processing must be done at waste tyre storage sites specifically aimed at decreasing transport costs and to minimise the transportation of waste tyres between collection points; and
4. The Implementer(s) may employ incentives to support the development of preferred WTP-value chains.

Governance of the Industry Waste Tyre Management Plan

The IndWTMP must be reviewed at least every five years and may be updated regularly in consultation with the IAC if required by the changing market and country dynamics, public interests, or national imperatives. Implementation progress meetings must be held quarterly between the Implementer(s), the IAC and the WMB.

The Implementer(s) must submit annual financial statements audited by an independent auditor, as well as annual performance audits, which will be published and made available to the IAC, the WMB, the Department, National Treasury, and the Auditor General.

The governance structure set the rules and directs the implementation of the IndWTMP and comprise of a combination of Government and industry sector role-players:

The role of Government

The Department is the custodian of this IndWTMP and will actively ensure the execution and legislative compliance of the IndWTMP. In addition, the Department and the WMB through strategic engagements with other government departments and agencies must initiate and pursue the development of incentives for the development of the waste tyre processing market. The facilitation of market development must include, but not limited to,

- i) the expansion of the market for rubber bitumen requires engagements with amongst others, the Department of Transport (and its provincial equivalents) and the South African National Roads Agency (SANRAL).
- ii) Explore the potential of off-takers that may have the ability to be the off-takers for multiple waste streams and as such the engagements require a measured approach that does not promote the demand for waste tyres at the expense of other waste streams (e.g. refuse derived fuel in the case of the cement kilns).

The Department will collaborate with the Implementer(s) to monitor performance and progress against predetermined targets set out in

Table 6. Oversight by the WMB will be done on a regular and ongoing basis. The implementer(s) must provide non-financial performance reports on the implementation of this IndWTMP.

The WMB will oversee the implementation of the IndWTMP, through:

- a) Appointment of the Implementer(s);
- b) Development of incentives and management of incentive schemes;
- c) Disbursement of incentives and funds for the implementation of the waste hierarchy throughout the waste tyre value chain;
- d) Monitor the implementation of this IndWTMP; and
- e) Enforcement of the implementation of the IndWTMP.

The role of Industry

The role of industry is to support the implementation of the IndWTMP through active participation in the IAC.

Financial Arrangements

The Tyre Levy is the only income stream from the Tyre Industry and the Department has to apply to National Treasury for a budgetary allocation from that income stream, for the implementation of the IndWTMP, but the Tyre Levy is not ring-fenced for this purpose. The budgetary allocation from National Treasury to the Department therefore limits the budgetary allocation to be made to the Implementer(s) through the WMB.

The business plan and budget submitted by the Implementer(s) to the WMB to apply for its budgetary allocation from the Department, must provide for all financial mechanisms (including grants from any appropriate government Department/Agency), inclusive of the following:

items 4.1.1

d. *“payment of a subsidy in the form of a processing fee to all waste tyre processors, including the cement and brick industry”*

items 4.1.2

a. *incentives including, but not limited to:*

- i) *subsidies for plant establishment, equipment upgrades, and*
- ii) *grants on a cost-sharing basis”*

Subsidies for capital investment are part of the incentives to make the investment in the waste tyre processing industry cost-effective for investors, to stimulate the growth of this industry as envisaged in Objective 1.

The Implementer(s) must submit the required budget to implement the IndWTMP in line with the Department budget cycle, together with the updated business plan, to the WMB to facilitate its application for a budgetary allocation. The minimum requirements and format of the business plan and budget to be submitted by the Implementer(s), must be prescribed by the Department in consultation with the Auditor General and National Treasury and communicated at a compulsory briefing session.

- i. The business plan and budget including quarterly estimate on expenditure must be submitted to the WMB on an annual basis for approval
- ii. National Treasury has indicated that the budget allocated annually is dependent on the quality of the business plan submitted. It is therefore imperative that a good quality business plan must be prepared.
- iii. The business plan and budget must preferably be supported by the IAC and the Implementer(s) must provide proof of support or reasons for not supporting the business plan and budget together with the submission to WMB.
- iv. The Implementer(s), IAC and the WMB must meet on a quarterly basis.
- v. Payment to the Implementer(s) will only be made by the WMB once an invoice for services rendered, together with the reports and supporting documents, have been verified and approved by the WMB.

The proposed budget allocation indicated as percentage of total is provided in Table 7. The proposed allocation should not be seen as a target, but rather as guidance. Emphasis is on allocating as much as possible of the budget towards the development of processing capacity and the logistics of managing the Waste Tyres.

Table 7: Proposed percentage budget allocation

	% budget split
Pre-processor and processor subsidies	35
Collections and Transport	30
Waste tyre storage sites/collection points	20
Training/capacity building/awareness raising mentoring	2
Research and Development	3
Administration	10
Total	100

Monitoring and reporting

Monitoring must be conducted and reports on the management of waste tyres must be submitted to the WMB by the implementer(s). The WMB may at any time, require information into the monitoring and reporting data used or generated whether that data was generated by the Implementer(s) or by any of the role-players in the management of waste tyres or received from any other role player or service provider.

Reporting requirements in terms of the Waste Information Regulations, 2012

Section 60(1)(a) of the NEM: WA prescribes the establishment of the South African Waste Information System (SAWIS) for the recording, collection, management and analysis of data and information, which must include data on the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, re-used, recycled, recovered and disposed of. The waste tyre industry engaged in activities Listed in Annexure 1 of these regulations is therefore required to register and report in terms of the requirements of the SAWIS and provincial waste information

systems. The reporting by the tyre industry must include; the amount of waste tyres recovered, recycled, treated, or disposed of.

Reporting requirements in terms of the Waste Tyre Regulations, 2017

- i. Persons registered in terms of regulation 5 of the Waste Tyre Regulations of 2017 must report information as required in terms of their registration
- ii. all tyre producers must on a quarterly basis, while their declarations are submitted to the SARS, submit to the WMB the very same declaration in respect of the quantity of tyres produced or imported

Reporting progress on implementation of the IndWTMP

All role players with reporting duties indicated in item 5, must report to the WMB and the Implementer(s) on a monthly basis. The monthly reports must:

- i. Be in the format as prescribed by the WMB
- ii. Cover the data for the full calendar month preceding the submission date
- iii. be submitted by the 7th of each month

Performance indicators should include, but not be limited to:

- a) Frequency of collections – this must be dependent on the location of the collection points and take into consideration urban, suburban and outlying areas;
- b) Adherence to waste tyre mutilation guidelines by tyre dealers;
- c) Adherence to mandatory collection of mutilated Waste Tyres by waste collectors;
- d) Order fill rate – from waste tyre storage sites to waste tyre processors;

Reporting by Implementer(s)

It is important to monitor progress with the implementation of the IndWTMP. Suitable progress and performance indicators that will be monitored and reported on relate to amongst others, finances, state of the environment reporting, and waste tyre management reporting.

The Implementer(s) must:

- i. report progress with implementation of the IWTMP to the WMB in the format as determined by the WMB;
- ii. submit progress reports monthly for the first year of implementation IWTMP and quarterly for the remainder of the period of implementation;
- iii. submit all progress reports by the 15th of the month following the reporting period.

Reporting must include, but not be limited to:

- a) National aggregated numbers and tonnes of tyres put into the market in a year.
- b) National aggregated figures of the number and tonnes of waste tyres collected monthly.
- c) National aggregated number and tonnes of Waste Tyres used for recycling (also expressed as a percentage of the total).
- d) National aggregated number of tonnes of Waste Tyres used for energy.
- e) New jobs created in the transport sector due to the implementation of the IndWTMP (indicate gender and race).
- f) New jobs created in the processing sector due to the implementation of the IndWTMP (indicate gender and race).
- g) Number of businesses established in the year including BBEEE status.
- h) Spend on Research and development.

Audits must be done on at least the following

- i) Compliance with waste legislation and waste tyre regulations.
- j) Financial reports.

Evaluation

The IndWTMP must be evaluated by the WMB on an annual basis in terms of the following:

- i. Informed by the IAC, an evaluation of the practicality and efficiency of administrative processes, logistics, and operations associated with the implementation of the IndWTMP;
- ii. Progress being made against the targets, including achievements and challenges and measures to overcome the challenges; and
- iii. Recommendations for improvements of the IndWTMP.

The recommendations and improvements must inform the updated plan submitted to the Minister for approval.

Transition between Implementers

Interruptions in the processes, contracts and business while moving from one Implementer to the next must be avoided. The new implementer must take note that there are active contracts, and these contracts should be adhered to. Further to that the new implementer must negotiate with the contracting party to have the contract ceded.

The systems developed, the moveable property procured, material developed, intellectual property obtained by the implementer and the equipment procured as part of the implementation of the IndWTMP, must form part of the asset register and must form part of the property of the state. In the event that the contract with the Implementer is terminated, all the systems developed, the moveable property procured, material developed, intellectual property obtained and the equipment procured must be transferred to the new Implementer. The WMB must do an audit of assets and liabilities in conjunction with the implementer and handover to the next Implementer within 3 months of the termination of the contract with the Implementer. A transitional pathway and methodology must be outlined in the contractual agreement.

Research Development and Innovation

The Waste Research, Development and Innovation (RDI) Roadmap (2015-2025) has identified waste tyres as a priority waste stream requiring intervention. The Waste RDI Roadmap specifically mention that choice in technology solution(s) targeted must be guided by what makes local economic sense, based on, amongst others, the quantities and types of waste tyres generated, the local cost of technology solutions, the value of waste tyre streams to local markets, available skills, the local policy environment, and the local climate for business and investment.

Research and development initiatives supported through funding by the IndWTMP must be aligned with the Waste RDI roadmap priorities for waste tyres and the findings of these projects must be communicated the IAC, the Department and the WMB on an annual basis. Each project must be guided by a Project Steering Committee convened by the Implementer(s). Members of the IAC, among others, must be invited to serve on every Project Steering Committees to ensure relevance to the Tyre industry in the South African context.

Enterprise development and job creation

Both enterprise development and job creation are mentioned in objective 1 as it relates to waste tyre processing. Enterprise development opportunities across the waste tyre value chain, especially in developing new processing capacity, will be supported through incentives as outlined in item 3.4.2 and 3.4.3.

Coupled with enterprise development is job creation. Although labour intensive practices may exist, the primary objective of the IndWTMP is to reduce waste tyre stockpiles. Therefore, a balance is required between job creation and throughput efficiency in Waste Tyre processing. The Implementer(s) must establish a benchmark for job opportunities that should be realised per tonne of waste tyres processed. This benchmark will inform qualifying criteria for incentives to be developed.

Duties, roles, and responsibilities of each actor in the implementation of IndWTMP

The management process flow clarifies the roles of the different actors along the waste tyre value chain (see Figure 10). It should be noted that pre-processing of waste tyres may be done at any waste tyre storage site, pre-processing facilities or at waste tyre processors. Furthermore, development in processing technology have introduced mobile pre-processing units, which operate on-site at stockpiles.

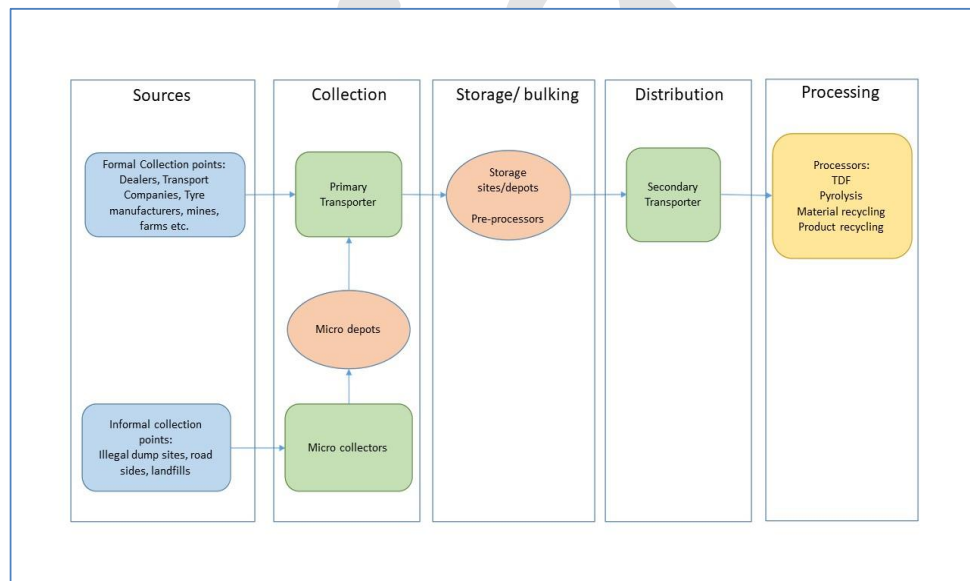


Figure 10: Waste Tyre management process flow

The Implementer(s)

The implementer(s) is the administrator of the implementation of the IndWTMP and therefore must, amongst others:

- a) Assume overarching operational management of waste tyres in South Africa. The Implementer(s) may not appoint a management company or any other company to manage the duties, obligations and responsibilities of the Implementer(s) on its behalf;
- b) Take over the waste tyre management from the WMB and ensure that there is a smooth transition from the waste tyre management model implemented by the WMB and the implementation of this IWTMP;
- c) Implement the IWTMP, and adhere to the targets for waste tyre processing and reduction in stockpiles as set out in item 3.4.3;
- d) Ensure that an electronic monitoring system is in place to ensure accurate reporting in accordance to item 3.6, transparency and to support legitimate claims for waste tyres collected and/or processed in terms of progress against targets;
- e) Ensure the establishment of a viable waste tyre processing industry in South Africa in coordination with the independent evaluation incentive committee;
- f) Support and facilitate the creation of or create markets for waste tyres and products from waste tyre processing;
- g) Support research in new viable and environmentally sustainable technologies in respect of the processing of or the utilisation of waste tyres and secure investment for the implementation thereof, if financially viable;
- h) Provide surety of supply contracts to waste tyre processors in accordance to item 3.4.2;
- i) Coordinate the waste tyre logistics and technical advice provided by the IAC;
- j) Ensure that depots have some form of value adding to create a competitive base for profit seeking.
- k) Ensure the increasing of management autonomy of depots to full independency;
- l) Ensure that all the role players fulfil their role in accordance to this of the IndWTMP;
- m) Keep record and report annually on the movement of waste tyres between all role players to the WMB;
- n) Put measures in place to ensure that no waste tyres end up in illegal markets or in the environment;
- o) Collaborate with the waste tyre sector on an ad-hoc basis but at least on a quarterly basis through scheduled meetings with the IAC (refer to item 4.6.3) to achieve the objectives of the IndWTMP;
- p) Secure annual budgetary allocation from the Department for the implementation of the IndWTMP through disbursements, including subsidies, based on services rendered. All payments must be supported by a paper trail of invoices and supporting documentation;
- q) Submit a business plan and budget in line with government budget cycles as set out in item 4.6.3. The budget and business plan must be reviewed and updated on an annual basis;
- r) Report to the WMB in accordance to item 4.7.4 of the IndWTMP;
- s) Report on a quarterly basis to the IAC; and the Provincial Waste Management Forums on the implementation of the IndWTMP;
- t) Consult the DTIC on the extent of their current incentive schemes applying to the development of the waste tyre processing industry.
- u) Investigate and making recommendations to the WMB and the Department on the design, development and implementation of incentives, policies, regulations, norms and standards, good practice as appropriate to reduce waste Tyre generation and to enhance the implementation of the IndWTMP;

- v) Support for the incorporation, establishment and growth of SMME's in waste tyre value chains and the transportation of waste tyres and waste tyre products. Design and implement capacity building, training, and mentoring programmes to support sustainable business development and growth in the waste tyre industry.
- w) Effect payment of collectors, depots, transporters, pre-processors and processors for services rendered;
- x) Disburse incentives to qualifying recipients from the budgetary allocation received from the WMB;
- y) Devise a waste tyre payment structure to replace the current flat-rate transport rate per ton. Payment of transporters must consider both tonnage and distance travelled to level the playing field across South Africa; and
- z) Submit independent, audited financials to the WMB and Auditor General in accordance with item 4.4 of the IndWTMP.

The Department

The Department as the custodian of the IndWTMP must:

- a) Appoint the Implementer(s) of the IndWTMP through an open tender process;
- b) Provide the timeframes of the budget cycle to the implementer(s);
- c) Provide minimum requirements and templates for the business plan and budget to the appointed Implementer(s);
- d) Approve the business plan submitted by the Implementer(s) to fund the implementation of the IndWTMP, as appropriate;
- e) Apply to National Treasury for budgetary allocation to the Implementer(s) based on approved business plan(s) and budget(s);
- f) Disburse the budgetary allocations to the Implementer(s);
- g) Develop incentives and qualifying criteria for incentives referred to in item 3.4.3 in consultation with WMB, DTIC, National Treasury, Implementer(s) and the IAC;
- h) Establish an independent evaluation committee to evaluate EoI submitted by tyre processors;
- i) Oversee the coordination of waste tyre logistics;
- j) Review audit report and financial statements submitted by the Implementer(s)
- k) Engage in strategic discussions with relevant stakeholders to facilitate market development for processed waste tyres;
- l) Collaborate with the Implementer(s) to monitor performance and progress against predetermined targets;
- m) Evaluate the technology readiness, financial and economic viability of new processing technologies together with the Implementer(s).

The WMB

In terms of the Section 34E(1)(g) of NEM: WA, the WMB must perform any other task or function that the Minister may assign or delegate to the WMB in relation to the implementation of NEM: WA.

The WMB must:

- a) Establish an Industry Advisory Committee;

- b) Manage the Implementer(s) through the contract that includes the imposition of penalties for failure to meet set targets;
- c) Evaluate the business plans and annual budget submitted by Implementer(s);
- d) Disburse payment for services rendered by the appointed Implementer(s);
- e) Assist with the development of award criteria for surety of supply contracts;
- f) Establish a benchmark for job opportunities that should be realised per tonne of waste tyres processed to qualify for incentives;
- g) Keep record of audit reports received;
- h) Publish audit reports received from the Implementer(s) for public scrutiny on an annual basis;
- i) Review fuel prices and the associated transport tariffs on a monthly basis;
- j) Review incentives on an annual basis; and
- k) Ensure and/or undertake research and development to support the implementation of the IndWTMP.
- l) Establish an incentives evaluation committee

Industry advisory committee

The functions of the IAC include but are not limited to:

- a) serve as communication platform between members organisations and the Implementer(s)
- b) providing guidance to the Implementer(s) on the functioning and operations of the tyre and waste tyre processing industry;
- c) provide input into the business plan of the Implementer(s) to WMB to secure budgetary allocation for the implementation of the IndWTMP;
- d) contributing to solutions to overcome challenges experienced during the implementation of the IndWTMP;
- e) sharing knowledge and information with the Implementer(s) as and when required; and
- f) reviewing of progress reports before submittal to the WMB.

Tyre producers

- a) In terms of the Rates and Monetary Amounts and Amendment of Revenue Laws Act, 2016 (Act No. 13 of 2016) read with section 13B of NEM: WA, Tyre Producers must contribute a Tyre Levy to the South African Revenue Service.
- b) Tyre producers, through their associations (TIASA, SATMC) must on a quarterly basis report to the WMB and/or to the Department, on the aggregated number and type of tyres entering the market.
- c) Tyre producers must on a quarterly basis submit to the SARS their declarations, and at the same time submit to the WMB the very same declaration in respect of the quantity of tyres produced or imported.
- d) Tyre producers must nominate a representative to sit on the IAC.

Tyre dealers

The duties of tyre dealers are outlined in regulation 6 of the Waste Tyre Regulations, 2017. Tyre dealers must:

- a) Inform consumers of the proper care and efficient use of tyres to extend their useful life in collaboration with road safety campaigns;
- b) Ensure that consumers receive accurate information on the proper care for new tyres at the point of sale and the proper disposal of waste tyres;
- c) Classify any used tyre in his or her possession or control and mutilate waste tyres or cause waste tyres to be mutilated as prescribed in the regulations;
- d) Keep record of the number and types of mutilated waste tyres;
- e) Report the number and types of mutilated waste tyres to the WMB and to the Implementer(s);
- f) Manage all waste tyres in his or her possession or control or cause such waste tyres to be managed in accordance with the IndWTMP;
- g) Tyre dealers, who are also importers of tyres, are also compelled to pay the levy as referred to in item 5.5.

Person nominated in control of a collection point where waste tyres may be collected

Persons in control of collection points must:

- a) Classify any used tyre in his or her possession or control and mutilate or cause all waste tyres in his or her possession or control, to be mutilated as prescribed in the NEM: WA: Waste Tyre Regulations of 2017;
- b) Keep record of the number and types of mutilated waste tyres;
- c) Report the number and types of mutilated tyres to the WMB and to the Implementer(s);
- d) Manage all waste tyres in his or her possession or control or cause such waste tyres to be managed in accordance with the IndWTMP;
- e) Ensure environmental protection through efficient and practical pollution prevention measures and mitigating all negative environmental impacts as soon as it is detected; and
- f) Comply with health and safety standards and compliance.

Operator of a waste tyre pre-processing facility

Owners or operators of waste tyre pre-processing facilities must:

- a) Register with the WMB;
- b) Enter into an agreement with the Implementer(s);
- c) Provide for current fire prevention measures to be in place;
- d) Meet the storage requirements contemplated in regulation 10 if waste tyres are stored on-site;
- e) Institute labour intensive practices where it can be done practically, feasibly and safely;
- f) Meet all safety standards in terms of labour law;
- g) Ensure environmental protection through efficient and practical pollution prevention measures; and
- h) Report negative environmental impacts to the relevant authorities.

Waste tyre transporters

Waste transporters must:

- a) Register with the WMB;
- b) Ensure that all transfers are recorded in respect of weight and type of waste tyres transported;

- c) Ensure that all loads are signed off by both the Transporter and recorded as received by the said pre-processor, waste tyre storage service area, waste tyre processor;
- d) Operate road worthy vehicles;
- e) Abide by all traffic rules and regulations; and
- f) Ensure that drivers are duly licensed.

Micro-collectors of waste tyres

Micro-collectors must:

- a) Register with the WMB;
- b) Collect waste tyres within their area of responsibility using own transport methods;
- c) Deposit accumulate their Waste Tyres at material sorting facilities (MSF) positioned within the community area in areas clearly demarcated for the purpose of storage;
- d) Deliver waste tyres to the site manager present at all times during receipt and delivery of waste tyres; and
- e) Follow the stacking and storage instructions of the Implementer(s) as per the norms and standards of the Department.

Operator of a depot or waste tyre storage site

Owners and operators of waste tyre storage sites must:

- a) Register with the WMB;
- b) meet the storage requirements contemplated in regulation 10 of the Waste Tyre Regulations of 2017, the National Norms and Standards for the Storage of Waste, 2013 and any other applicable legislation;
- c) provide for fire prevention measures to be in place;
- d) Report on the number and type of waste tyres entering and leaving the site on a monthly basis to the WMB and the Implementer(s); and
- e) ensure environmental protection through efficient and practical pollution prevention measures; and
- f) mitigating all negative environmental impacts as soon as it is detected.

Waste tyre processors

Waste Tyre processors must:

- a) register with the WMB;
- b) enter into Waste Tyre supply agreements with the Implementer(s) or agree to the cession of existing contracts from the WMB to the Implementer(s);
- c) provide for current fire prevention measures to be in place;
- d) meet the storage requirements contemplated in regulation 10 of the NEM: WA: Waste Tyre Regulations of 2017, if waste tyres are stored on-site;
- e) institute labour intensive practices where it can be done practically, feasibly and safely;
- f) meet all safety standards in terms of Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

- g) ensure environmental protection through efficient and practical pollution prevention measures,
- h) report negative environmental impacts to the relevant authorities;
- i) Report on the number or tonnage, and type of waste tyres entering their site to the WMB and to the Implementer(s); and
- j) Report the tonnage of waste tyres processed on a monthly basis to the WMB and the Implementer(s).

Tyre consumers

All consumers of tyres must:

- a) manage all waste tyres in his or her possession or control, or cause such waste tyres to be managed in accordance with the IndWTMP; and
- b) prevent such waste tyres from being dumped or disposed of in a manner that has the potential to cause environmental pollution or ecological damage.

Implementation timeframe and migration pathway

Timeframe

The IndWTMP must be reviewed every 5 years, or sooner should the Minister deem it necessary. It is desired that this IndWTMP remain in existence in perpetuity and that the appointment of the Implementer(s) be limited to 5 years in the contract with the WMB, with the option of renewal or extension thereof, provided that National Treasury agrees to such renewal or extension.

The review of the IndWTMP must consider the objectives and progress towards meeting the targets and address challenges towards meeting the longer-term vision of the IndWTMP.

Migration pathway

A transitional period, not exceeding one year from the date of appointment of the Implementer(s), is required to allow current stakeholders to adjust their business operations to a new regime. Interruptions in the current processes, contracts and business while moving from the current status quo to a new reality must be avoided. The new implementer(s), once duly appointed by the WMB, must take note that there are current contracts concluded with the WMB and that the current contracts should be adhered to. Further to that the new implementer(s) must negotiate with the current contracting party to have the contract ceded. This transitional period must not impact on the meeting of targets as set out in Table 6.

The following implementation process is to be followed:

1. Once the Minister has approved the IndWTMP, and while no Implementer(s) is appointed, the WMB must continue, as it currently does, to prepare and submit an interim budget and business plan in line with the government budgetary cycle to apply for a budgetary allocation from National Treasury to ensure continuity in the Waste Tyre management process.

2. The WMB must then, within the constraints of the budgetary allocation from National Treasury, continue to administer waste tyre management, as it currently does.
3. The Implementer(s), once so appointed, must in consultation with the IAC prioritise those options that will have immediate benefit and can be implemented quickly to reduce current stockpiles through:
 - a. Consultation with the cement and brick making industry for the processing of waste tyres;
 - b. Consultation with mines for increasing processing of OTR's;
 - c. Implementing incentives developed by the WMB to upscale pilot plants where feasible.
4. The Implementer(s) must develop training, awareness, and capacity building programmes to support SMME development and engagement in the Waste Tyre processing sector.
5. The Implementer(s) must review the current fee and payment structure associated with Waste Tyre collections and transport.
6. The Implementer(s) may, with written consent by the WMB, procure equipment to support the implementation of the IndWTMP. Ownership of such equipment will revert to the WMB to remain available for waste tyre management in South Africa.
7. The Implementer(s) together with the Department and the WMB must evaluate the technology readiness, financial and economic viability assessments for various waste tyre processing options in South Africa.

Different stakeholder groups play different roles in waste tyre management and processing and must consequently be migrated from the status quo to the new plan within a year.

The migration process must include, but not be limited to the following:

- a) The WMB must disclose all data and relevant information relating to the management of waste tyres for the full period that the WMB was responsible for the management of waste tyres.
- b) The Implementer(s) must conduct an audit of equipment, and the current stockpiles of waste tyres, to confirm current locations, owners, and the volumes of stockpiled waste tyres before the IndWTMP is implemented. This must ensure that there is proper hand-over and no disputes that can surface at a later stage. The audit done by the Implementer(s) on all waste tyre storage sites must inform the decisions on which sites to keep and which sites to close and then work towards closure of identified sites coinciding with the end of those contracts. The time left on these contracts should help them plan properly and migrate without causing operational gaps.
- c) The WMB will, subject to the provisions of the Protection of Personal Information Act 4 of 2013, hand-over or allow access to all systems, databases, equipment, and other relevant information as may be required, and that was developed, procured and used for the purposes of the management of waste tyres to the Implementer(s).
- d) Databases and equipment handed-over to the Implementer(s) must be maintained, upgraded, and/or updated, as the case may be, to remain operational, current and efficient for the management of waste tyres and must be returned to the WMB to safe-guard continuity of operations when Implementers' contracts come to an end.
- e) The WMB must train and support the Implementer(s) on the running of the systems to ensure continuity in the management of Waste Tyres, collection of data, and contracts. This could take

the form of on-the-job training over a specified period to ensure a smooth transitional period as agreed at the time of appointment of the Implementer(s).

Compliance with the IndWTMP and relationship with other legislation

- i. Compliance with the IndWTMP does not exempt any of the role players from complying with any other applicable legislation.
- ii. Failure to comply with the IndWTMP is an offence in terms of section 67(1)(d) and a person who commits such an offence is liable to the penalties set out in section 68(2).

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