



2012 FIRE REPORT



Haygrange fireguard project in Mangwe District ward 11
before and after fireguard construction: June 2012

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1.0 Executive Summary

The 2012 fire season saw a marked increase in area burnt by fires, fire incidences, number of lives lost and property lost due to fires. A total of 1,320,325 hectares has been burnt in 2012 fire season compared to 713,770 hectares lost in 2011. These fires resulted from a total of 1,861 fire incidences. A total of 16 people have lost their lives to fires in the 2012 fire season while 5 people lost their lives to fires in the 2011 fire season. The majority of the victims were aged between 2-5 and then above 70 years. Property and infrastructure worth \$479,723 was destroyed by veldt fires. The property and infrastructure includes livestock, buildings, plantations, electricity poles, vehicles, farm equipment and crop produce.

Awareness campaigns totaling 1,138 were held countrywide covering veldt fire issues, approximately 92,899 people were reached. These campaigns included the road shows that were conducted during the fire season and reached out to approximately 23,770 people. EMA nationwide fire guard construction demonstrations projects were carried in 19 sites resulting in 324,4 km stretch of fire guards being constructed. The Agency hay baling project had an estimate of 22,917 bales worth \$35,825 made. The cumulative stretch of fire guards in the country as a response by farmers to the 2011 and 2012 fire projects is 3,288.4 km.

The Agency continued to enforce the law for improved compliance. The period under review recorded 874 tickets issued compared to 240 in 2011. A total of 1 341 orders were issued to property owners to put in place appropriate fire suppression measures. Prosecutions were done during the fire season and 129 dockets were opened for veld fire offenders and of these 67 went through the courts. Traditional leaders handled 88 cases of veld fires with Village Head Murindagomo of Mashonaland West handling 19 cases successfully.

2.0 Fire Prediction

Fire prediction provides the basis upon which annual fire management processes are done. The Agency predicted the fire risk for the country using vegetation and the results indicated that Manicaland, Mashonaland West, Mashonaland East and Mashonaland Central were at high risk to veld fires for the high biomass region. There was a positive correlation between the prediction and the actual occurrence of veld fires over the period where provinces in the high biomass regions Manicaland, Mashonaland West, Mashonaland East and Mashonaland Central recorded high fire incidences. A comparison of 2011 and 2012 fire predictions indicates that the 2012 fire prediction had a higher percentage of the country in the high and extreme risk zones.

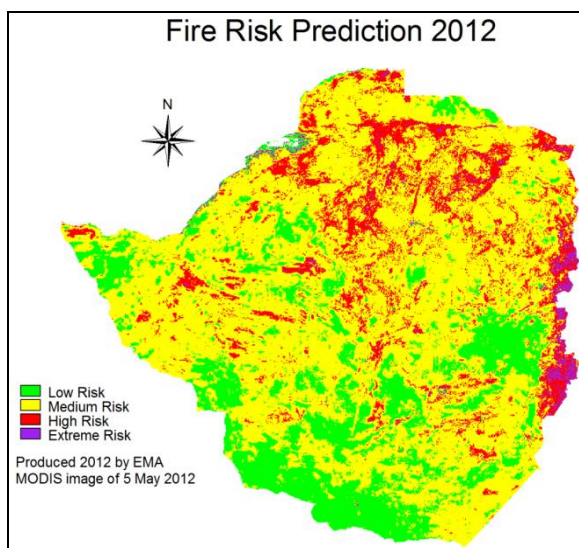


Figure 1: Fire risk prediction 2012

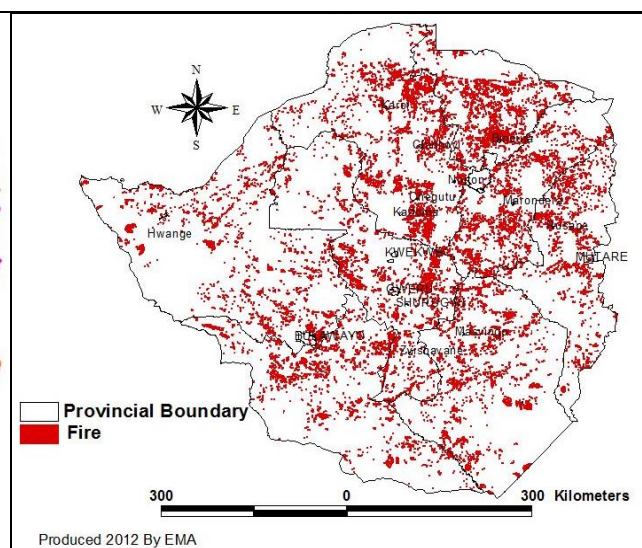


Figure 2: Hectares lost in 2012

2.1 Major Causes of Veldt fires

Anthropogenic factors cause most of the fires among the recorded cases. The major causes of the fires are land clearing, fireguard construction, hunting, unattended fires, deliberate lighting and children playing with fire. These causes of fires triggered the Agency to analyse how fire incidences and distance from the road relate.

Table 1: Causes of fire

Cause	Percentage contribution
Land clearing	45.2
Road sides	18.3
Hunting/mining	9.5
unattended fires	7.1
deliberate lighting and children playing with fire	4.8
Unknown causes	15.1

2.2 Fires and Distance from the Road Network Relationships

Data analysis for 2012 fires was done to determine the type of relationships that exist between fire incidences and distance from the road for August, September and October months of the fire season. The study used the same study areas as in the 2011 fire season analysis. Fire incidences data used was obtained from the fire station. In the analysis roads for each province were buffered at the following intervals 2,4,6,8 and 10 kilometres away from the road. The provinces analysed are Mashonaland West, Mashonaland East , Mashonaland Central and Manicaland. In all the cases except for Mashonaland East in August fire incidences significantly decreased with increase in distance from the road.

In the month of August data analysis revealed that in Mashonaland West fires relationship with distance from the road was 98 % with a confidence of (p=0.05), Mashonaland central was 94% with a confidence of (p=0.04) while Mashonaland East had the least relationship of fire incidences and distance from the road at 57% ,*Figure 3-5 refers*. Weekly fire statics burnt reveals that August had the highest amount of hectarage lost to fires.

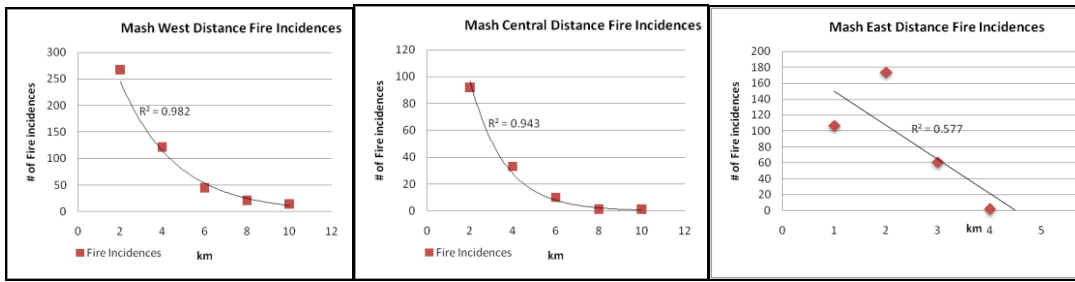


Figure 3-5 Distance from the road and fire incidences in August

In the month of September distance analysis of fire incidences was also done for Mashonaland West, Mashonaland East and Mashonaland Central provinces. Data analysis results indicate that in Mashonaland West province distance from the road statistically significantly ($p=0.04, r = 0.98$) affect fire incidences as illustrated in figure 6-8.

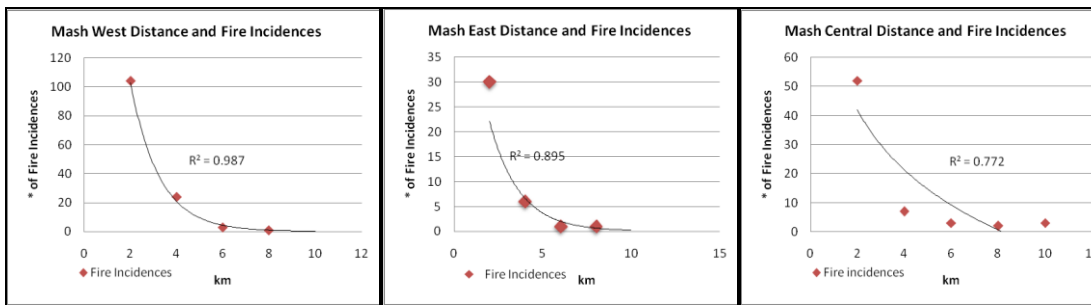


Figure 6-8: Distance from the road and fire incidences in September

The month of October had more fire incidences near the road network in the Mashonaland Central, Mashonaland East and Manicaland provinces. Manicaland province fire incidences can be explained by distance from the road 98 % of the times. A negative correlation exists between the number of fire fires incidences and distances from the road. In other words more fire incidences were noted near the road network and the number of incidences decreased as with increase in distance from the road in all the cases, *Figure 9-11 refers*. The results indicate that in 2012 there were more fires near the road network. This fact also goes hand in hand with the increased area burnt by fires.

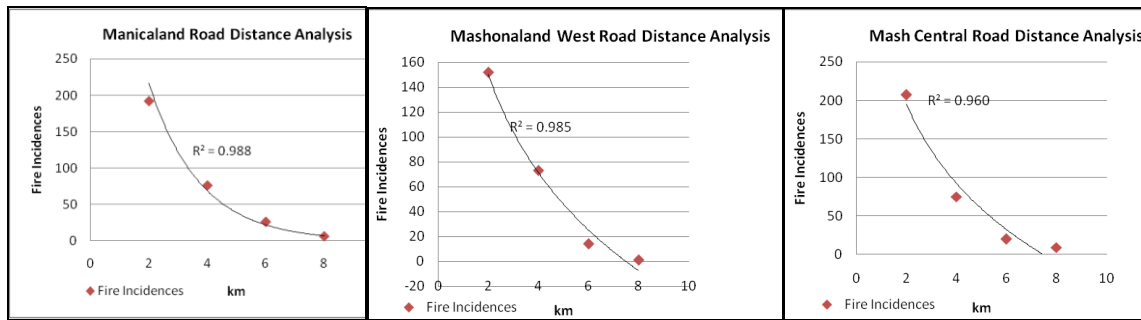


Figure 9-11 Distance from the road and fire incidences in October

2.3 Fires and distance from Mineral Panning sites

Following the high hectarage of land lost to fires along the Great dyke in the 2011 fire season a study was done to understand the relationship between the Great dyke and fire incidences. The Great dyke is the mineral backbone of the country, mineral prospecting, mining and mineral panning takes place at the Great dyke. The 2012 fire incidences were related to distance from the great dyke for the month of August and September. In August fire incidences along the Great dyke could be explained by distance away from the Great Dyke 31% of the time while in October more fire incidences (77%) could be explained by distance from the Great Dyke. The Agency will upscale its campaigns along the Great Dyke in 2013.

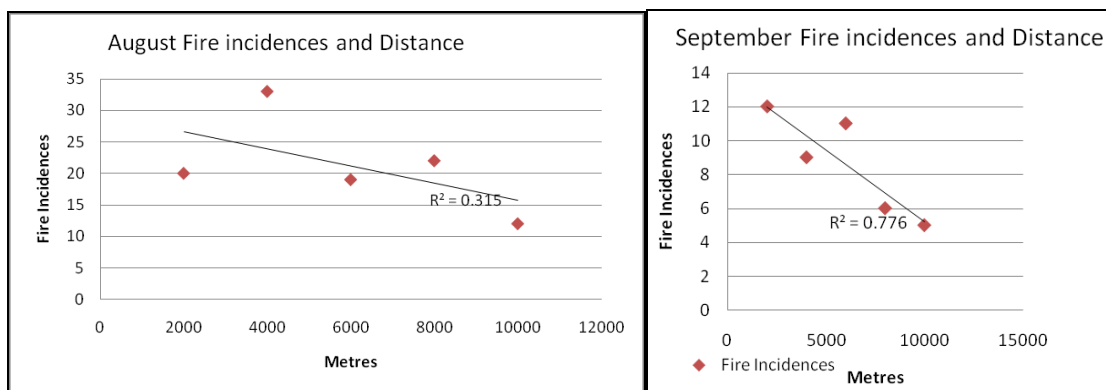


Figure 12-13 Fire Incidences and distance from the Great Dyke

3.0 Environmental Education and Awareness

3.1 Fire Updates

Daily fire updates of active fires have been done by the Agency by email alerts (firenews@ema.co.zw) and phone calls to all our provincial offices, ZRP Harare, Forestry

Commission, Universities, Parks and Wildlife Authority, Agritex, Haka wetland and ZESA among others stakeholders. Of these cases communicated to stakeholders Forestry Commission, Universities and Parks and Wildlife Authority responded to 37% of the reports .

The data for fire updates is acquired from the fire station at Bluffhill offices that was acquired by the African Monitoring of the Environment for Sustainable Development AMESD project. The weekly fire trends of hectares lost are illustrated in figure 1.

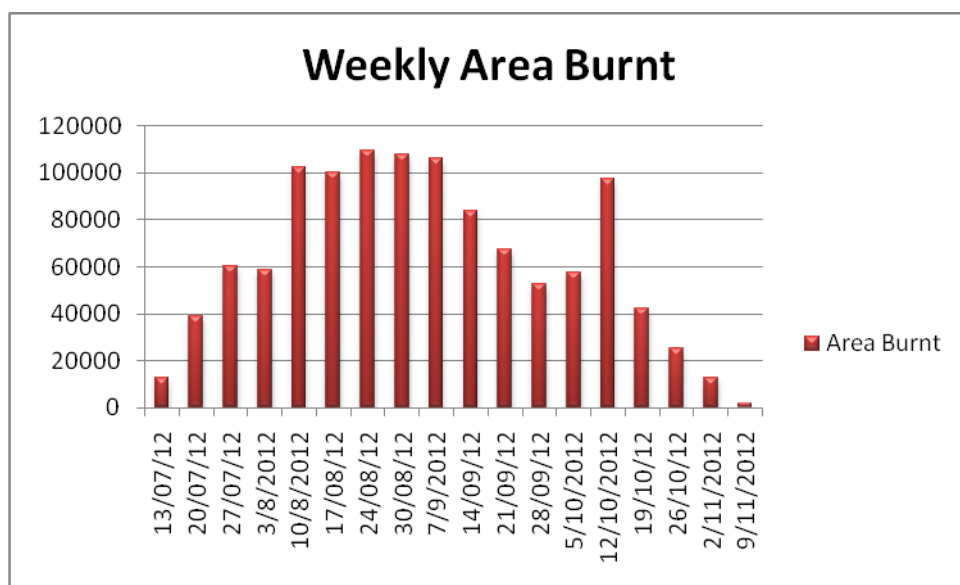


Figure 14 Weekly Hectarage Burnt

3.2 Fire Awareness

A total of 1,138 campaigns were conducted during the year. The campaigns included commemorations, meetings, workshops and road shows. A total of 92,855 people were reached. Literature on veld fires was also distributed during the campaigns.

Table 2: Fire Awareness in 2012

PROVINCE	Fireweek launches	Fire meetings	Road shows	Newspaper articles

	No	Attendance	No	Attendance	No	Attendance	No
Mash Central	1	230	287	11215	12	5050	10
Midlands	1	140	113	4450	13		6
Mat North	6	4965	64	3800	7	5200	4
Mat South	6	2869	46	690	-	-	9
Masvingo	5	2370	120	4320	7	1120	4
Mash East	7	2345	121	5700	8	2500	3
Mash West	2	816	180	3127	12	8000	23
Bulawayo	1	72	11	144	-	-	-
Manicaland	7	11470	87	10406	3	1900	5
Harare	-	-	-	-	11	-	140
TOTAL	36	25,277	1029	43,852	73	23,770	54

3.3 Fire launches

A total of 30 commemorations with a total attendance of 20,635 were held countrywide under the theme, “*Protect the Environment, Prevent Veld Fires*’. The national commemoration was held at Proton farm in Goromonzi, Mashonaland East. An estimated 1, 2 million people were reached through the print and electronic media. In addition 4,334 posters, 4 000 fliers, 1 500 bandanas, and 1 000 T-shirts were distributed at various functions.



Plate 4 Minister F.D.C Nhemba Conducting the Quiz Show at the National Fire Week in Goromonzi : May 2012

3.4 Road Shows

A total of 76 road shows were conducted in provinces namely Masvingo, Harare, Mat North, Mash West, Mash Central, Midlands and Mash East. Messages on, veldt fires management were broadcasted to a total of 23,770 people.



Plate 5 Road Show in Dandamera Business Centre, Mazowe district in Mashonaland Central: June 2012

3.5 Fire Management Meetings

A total of 1029 meetings and trainings were held on fire management throughout the country and 43,852 people were reached. The impact of the meetings is that they resulted in the formation of firefighting teams, construction of fire guards and production of firefighting equipment.



Plate 6 Part of the Community in Ward 17 Nkayi District meeting, During Training on Fire Guard Construction: July 2012

4.0 Trainings

A total of 111 trainings were conducted during the year. The trainings were done for fire fighting teams, Law enforcement agents and environmental subcommittees. The aim of these training was to clear the roles played by different parties in fire management. The impact of the training is the increase in the number of active fire fighting teams and increase in law enforcement of fire related crimes in various provinces.

Table 3 Fire related Training done in 2012

PROVINCE	Fire fighting teams		Law enforcement Agents		Sub committees	
	No	Attendance	No	Attendance	No	Attendance
Mash Central	4	120	-	-	2	79
Midlands	6	84	2	93	40	212

Mat North	5	62	-	-	7	71
Mat South	11	252	7	169	18	271
Masvingo	6	61		211		111
Mash East	52	440	5	202	4	29
Mash West	19	112	-	-	33	186
Bulawayo	3	75	1	35	-	-
Manicaland	24	168	1	68	17	255
Harare	-	-	1	48	-	-
Total	130	1,374	17	826	121	1,214

5.0 Impact of Fires

5.1 Lives lost

Sixteen people were burnt to death by veld fires, of these seven were toddlers (below 5 years) while three were aged (above 70 years). As a result fire awareness messages in the coming fire season will also focus on protecting the vulnerable groups. In 2011,5 people were burnt to death by veld fires.

Table 4 Lives Lost in 2012

Province	Name of victim	Age of victim	Cause of fire
Mash east- Goromonzi	Chatendeuka Mary	20	Land clearing
	Manyepa John	79	Unknown
	Chipitso Thomas	75	Hunting
Midlands- Shurugwi	Butau Tafadzwa	4	Children playing with fire
	Nyoni Tatenda	5	Children playing with fire.
Masvingo- Mwenezi, Ward 13	Mudyai Bhaloyi	81	Land clearing by the deceased

Manicaland	Mashura Blessing- Makoni district	7	Unknown
	Kapenzi Sheilla- Makoni district	56	Land clearing
	Zibute Ozias- Mutare district	63	Land clearing
	Marondo Makanaka- Mutasa district	4	Land clearing
	Mapungwana Josiah- Chipingwe district	3	Land clearing
Mash Central	Mutsigwa Angella- Mazowe district	23	Unknown
	Kamutumba Stacy- Mazowe District	1	Unknown
	Bainos Sarah- Mazowe district	32	Fire came from fire place
	Nyadzisai John- Mazowe	5	Fire came from fire place
Mash West	Gundani Johannes- Hurungwe.	2	Land clearing

In Mashonaland Central, Glenara Estates two people were burnt to death in their hut.



Plate 6 A pole and dagga hut raised to the ground by fire in Glenara Estates in Mashonaland Central: September 2012

5.2 Property Lost

Table 5 : Infrastructure Burnt in 2010, 2011 and 2012

Item	2010		2011		2012	
	Quantity/Type	Value(US\$)	Item	Value (US\$)	Item	Value (US\$)
Plantations	i. Forestry Plantations	338,500	i.1ha wattle trees	6,000	66ha of gum plantations 10 ha wattle trees 4 ha indigenous trees 36 ha tea plantations 4 Banana bush plants 76ha citrus plantations	220,280
	ii.Citrus Orchards (Mash Central & Mash West		ii. 186 orange trees			
	iii.Pine Plantation		iii.1000 gum trees			
	iv.Natural Forest 200 hectares					

Property	i.ZESA Transmitters ii.Matopos Motel iii.Matopos National Museum iv.73 Huts v.Household goods	226,016	i.94 Huts ii. 6 Vehicles iii.1 five roomed house iv. 4 700 Fencing poles and fence v.Generator vi.10 Blankets vii.Cattle pan viii.Irrigation pipes ix.ZESA equipment (cables and insulators) x. Telephone lines xi. Solar inventor xii. 3 Scotch carts xiii.4 Bicycles	168,580	Econet booster Tanks 100 ha property 64 huts 1 wheelbarrow 4 electricity poles and cables 4 window panes Satellite dish Toilet 25 poles Luxury coach 21 irrigation pipes 3 beds 2 homesteads 23 houses Wooden cabin 4 tractor tyres 3 bicycles Generator Battery Lorry Household property property troutbeck cottage and property 4 vehicles 14 roomed thatched house Granary 3 tobacco bans Tool shed -6.5 horse power pump	170,908.3
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Agriculture I goods (Livestock, Game & crops)	i.600 Chickens ii.4 goats iii. 3 donkeys iv.15 cattle v.20 Elephants	409,860	i.12.5 tonnes maize ii.10ha wheat iii.700kg fertiliser iv. 6 cattle v. 4 goats vi.12 chickens vii. 1 pig viii. 150kg soya beans ix. 5 bales tobacco	52,634	180 ha cropland 30 ha maize field 6 donkeys 118 gardens 5 cattle pens 2 bags fertilizer 14.5 tonnes maize 5 bags groundnuts 400 kg maize seed 33 tobacco seed beds 44 goats 3 puppies 75 chicks 17 bags fertilizers 65 bags of maize 28 litres herbicides 50kg pioneer seeds	88,535
Total		974,376		227,214		479,723.3



Plate 7 A donkey that was burnt to death in Guinea Fowl, Gweru district ward :October 2012

6.0 Fire Suppression Projects

6.1 Fire guard Projects

The fire guard management projects that were piloted in 2011 continued in earnest in 2012. A total of 324.4km have been cleared off, across the country. This is less than the total area of 615km recorded in 2011. Area cleared this year is subdued mostly because this is an addition to the maintenance of the previous season projects. A total of 1,783 families participated in the fireguard construction projects.

Table 6 :Fire Guard demonstration projects in 2012

Province	District	Length of fireguard constructed in 2012	No of families that participated in 2012
Mat South	Mangwe	14.2 km	32
	Matobo	10 km	468
Mat North	Nkayi	4.5km	
	Lupane	7	28
Mash East	Goromonzi-Proton farm	57km	650
	Chikomba Wildbeest farm	20km	350
Midlands	Chirumanzu	35 km	15
	kwekwe	27km	10
Manicaland	Makoni	19km	10
	Mutasa	57km	5
Mash west	Zvimba	16.6km	14
	Hurungwe	7km	20
Mash Central	Bindura	5km	73
	Muzarabani	6km	50
Masvingo	Masvingo	10.1	12
	Gutu	16.6km	1
	Bikita	0.2km	20
	Mwenezi	12km	15
	Chiredzi	0.2km	10
TOTAL	19	324.4km	1,783

The impact of the fire guard projects are evidenced by the 1,807 families that replicated the 19 fireguard projects. These families protected their valuable property from the ravages of fire and above all life of the local community was protected.

Table 7: Area under fire guards as a result of 2011 and 2012 fire guard construction projects.

Province	Land Use	Length of fire guards	Total Length of fire guards	No of families/ land users	No fire incidences stopped by fireguards
Mat South	A1	167 km	240km	624	13
	A2	29 km		299	
	Conservancies	44 km			
Mash West	A1	7 km	33km	1	9
	A2	26 km		26	
Midlands	A1	69.3 km	419.3km	15	8
	A2	350 km		20	
Masvingo	A1	205.9 km	358.1km	74	5
	A2	152.2 km		14	
Mash East	A1	269 km	571km	711	3
	A2	302 km		194	
Mash Central	A1	15 km	45km	200	8
	A2	30		7	
Mat North	A1	5	35km	80	4
	A2	30		28	
TOTAL			1701.4	1,370	54



Plate 8 A fireguard constructed at Simoona farm in Bindura: July 2012

Plate 9 Fireguard construction by communities in Chirumanzu : August 2012

In Mash West, the area surrounding Little England Farm was severely burnt save for the project area which was also the bailing project area. The fire guard managed to stop three fires. In Matebeleland South, the project area border's with the National Park and the one fire that was stopped was coming from the National Park area. Experiences from Matobo communities show that locals have a deeper understanding of the dangers of fire. During the one incident recorded, the community rushed to the fire guard when they noticed that the fire was approaching their community. The community managed to extinguish the fire before it got to the fireguard.

The challenge in Matebelaland South is A2 farmers are resisting to construct fire guards, the project is a success in the A1 farms. In Midlands Province, there has been a marked difference in the Chirumanzu project area. Last year Chirumhanzu recorded the highest incidences in the district while this year Kwekwe is topping the list. Ironically in Kwekwe there is another project which has been affected by 3 incidences. The challenge with the Kwekwe project is that the area is dominated by gold claims, and trainings and awareness mostly targeted farmers, miners in the area are usually difficult to mobilize.

Impacts from the 2011 fireguard projects were realised in 2012 as the majority of the project sites did not record any fire incidences (*Table 8*).

Table 8: Impact of 2011 fireguard project in 2012

Project Area	Affected Hectares		Incidences			Families That replicated the project	Comment
	2010	2011	2010	2011	2012		
Hwedza	800	30	7	3	2	320	Fire put out by the community
Chikomba	2,000	150	16	3	0	120	No fires in the project area
Nyanga	800	50	5	1	0	18	No fire in the project area
Bubi	3,900	1,518	7	2	0	4	No fires and well maintained fireguards
Umguza	5,300	0	4	0	0	310	Fireguards maintained this year without EMA funding. No fires in the project area to date.
Hurungwe	360	2	15	2		120	
Zvimba	126	120	10	2	2	90	2 fires in the project area put out by the community- 20 of the 500 ha burnt in project area
Gutu	370	1120	9	1	0	5	No fires in project area
Masvingo	1,170	1215	5	0	0	37	No fires in project area
Somabhula	15,000	50	15	0	0	50	No fires in project area
Shurugwi	2,500	600	12	0	0	25	No fires in project area
Insiza	2,325	800	5	0	0	450	No fires in the project area
Umzingwane	2,500	152	7	1	0	258	No fires in the project area
Total	37,151	5,807	117	15	4	1,807	No fires in project area

A total of 1,807 families replicated the fireguard project out of their own initiative following the demonstration sites established by the Agency. They managed to construct a total of 3,288.4km of fireguards. The impacts of these fireguards are summarised in Table 9.

Table 9: Impact of fireguard replication projects

Province	Land Use	Length of fire guards	Total Length of fire guards	No of families/land users	Total No of Families	Comments
Mat South- Bulilima and Mangwe	A1	167 km	240km	624	923	No fires reported in protected farms
	A2	29 km		299		
	Conservancies	44 km				
Mash West- Zvimba	A1	7 km	33km	1	27	No fires reported
	A2	26 km		26		
Midlands- Gweru and Shurugwi	A1	69.3 km	419.3km	15	35	No fires reported in Shurugwi. Five hectares burnt in Gweru District
	A2	350 km		20		
Masvingo- Gutu and Masvingo	A1	205.9 km	358.1km	74	88	No fires reported
	A2	152.2 km		14		
Mash East- Goromonzi, Chikomba, Hwedza	A1	269 km	571km	711	905	No fires reported in Goromonzi and Chikomba districts. Fire reported in Hwedza District
	A2	302 km		194		
Mash Central- Shamva and Bindura	A1	15 km	45km	200	207	No fires reported in Shamva district but two ha out of 100 ha burnt in Bindura.
	A2	30 km		7		
Mat North- Bubi and Umguza	A1	250 km	1622 km			No fires reported in Bubi
	A2	1372 km				
TOTAL			3,288.4		2,185	



Plate 10 Fireguard constructed at Buttercup farm in Somabula, Gweru district - Midlands

6.2 Hay Bailing Project

The hay bailing project was pioneered in 2012 so as to give an incentive to the local communities to protect their natural resources. Communities nationwide got together and made hay bales. These bales were either used by the local communities to feed their livestock or there were sold elsewhere. This project led to a decrease in biomass available for combustion in project sites and also made communities to be vigilant in protecting their resources. A total of 22,917 bales were made valued at \$35,825.

Table 10 Table Hay Bail project impacts

province	Project area	Targeted number of people	Number of bales	Total value of bales
Manicaland	La-mour farm – mutasa Mhandara farm - Makoni	123 farms	5035	\$15100
Masvingo	Gutu – Ward 1	13 plot holders	3260	\$8150
Mat North	Enyokeni	31 plot holders	9280	\$100
	Vic Falls- Bulawayo Rd	1000	3000	\$6000
Mat South	Lochard, Magohlo, Poplars and Lake water farms – Insiza	16	600 bales and 260 bundles	\$860
Mash East	Chipinga farm- Marondera	100	50	\$300
Mash West	Little England - Zvimba	30	62	\$1240
Mash central	Nil	nil	nil	Nil
Midlands	Somabula – ward 15	20 plot holders	1630	\$4075
Total			22,917	\$35,825



Plate 11-12 Bales from the fire guard at L'armour farm, Mutasa District Manicaland

6.0 Prosecutions

Prosecutions have been going on since the start of the fire season. The majority of offences have been lack of fire suppression measures, failure to put out fires and clearing of land. A total of 874 tickets have been issued for various offences with a total assessed value of \$103,000 of which only \$17,737 was paid. A total of 129 dockets were opened and the traditional courts handled a total of 88 cases.

Table 12: Fire related prosecutions

PROVINCE	Orders	Tickets				Cases handled by Traditional leaders	Cases handled by magistrate courts.	
	#	No issued	Fines Assessed	US\$ paid	Dockets	Number	Total No	Number finalised
Mash Central	141	138	\$14040	\$6400	29	5	29	-
Midlands	100	174	\$16320	\$7 850	6	8	6	6
Mat North	109	16	7200	2000	19	1	10	3
Mat South	114	23	\$7200			18	18	18
Masvingo	99	59	\$2800	\$2045	6	4	6	6
Mash East	388	75	\$16 860.00	\$752.00	28	10	28	15
Mash West	430	299	\$28560	\$5720	18	19	18	4
Bulawayo	-	1	\$1000	-	-	-	-	-

Manicaland	102	89	\$9020	\$820	41	23	15	15
Harare	-	18	-	-	-	-	-	-
TOTAL	1341	874	\$103,000	\$17,737	129	88	130	67

7.0 Recommendations

7.1 Internal Recommendations

1. Staff compliment at districts to be increased (technicians). Veld fire investigations are time consuming and it becomes difficult to balance out with other routine district activities.
2. Increase number of monitors across provinces and capacitate all monitors with resources such as bicycles and give incentives where appropriate.
3. Follow up on outstanding ticket payments, dockets to be opened for defaulters. (Blitz operation proposed for veld fire offenders)
4. Implement provisions of Section 18 of S.I 7 of 2007 which places responsibility of fire investigations on the local leaders. EMA should make local leaders aware of their obligations in terms of this legal provision and accord them the prescribed 7 day period to make investigations. EMA to take up role of investigations after lapse of 7 day period and penalise respective local leaders. EMA to conduct immediate investigations in severe cases such as those involving death/ injury to life and massive destruction to property and the environment.

7.2 External Recommendations

1. Engage judiciary to allow for bulk court appearances for offenders with minor and similar cases from the same area e.g non payment of tickets for failure to construct fireguards issued to the village head on behalf of the community
2. Engage Ministry of lands to expedite resettlement or eviction of squatters as they are constantly accused of starting fires (sabotage). Active engagement of the Ministry of Lands at national level to allocate adequate resources towards proper demarcation of farm boundaries in all disputed areas.
3. Step up stakeholder with other government arms such as Forestry Commission, Local Government and ZRP taking part in the fight against veldt fires.
4. Signing of a trans-boundary MoU with neighbouring countries, in this case with Mozambique for cross-border management of fires.

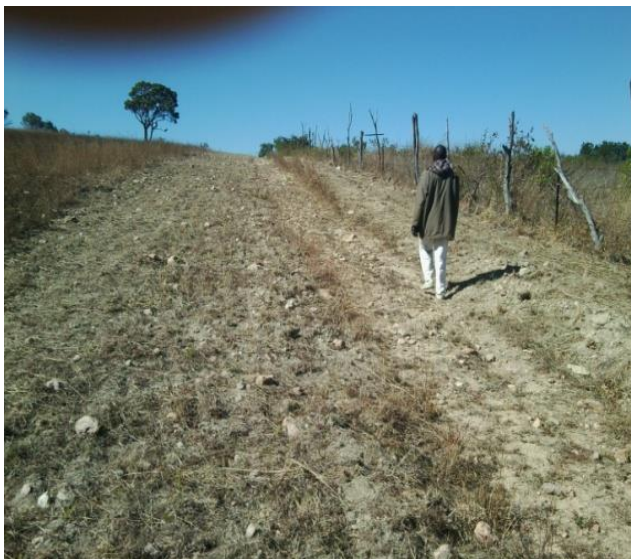
2012 Fire Pictures



Little England fire demonstration and bailing project 2012



A 15 kilometre fireguard in Masvingo district



Claremont fire project in Nyanga