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FOR SOUTH AFRICA 2009

LOGISTICS VALUE AND COST DRIVING MACRO AND MICRO-ECONOMIC CHANGE TOWARDS GLOBAL COMPETITIVENESS AND SUSTAINABILITY

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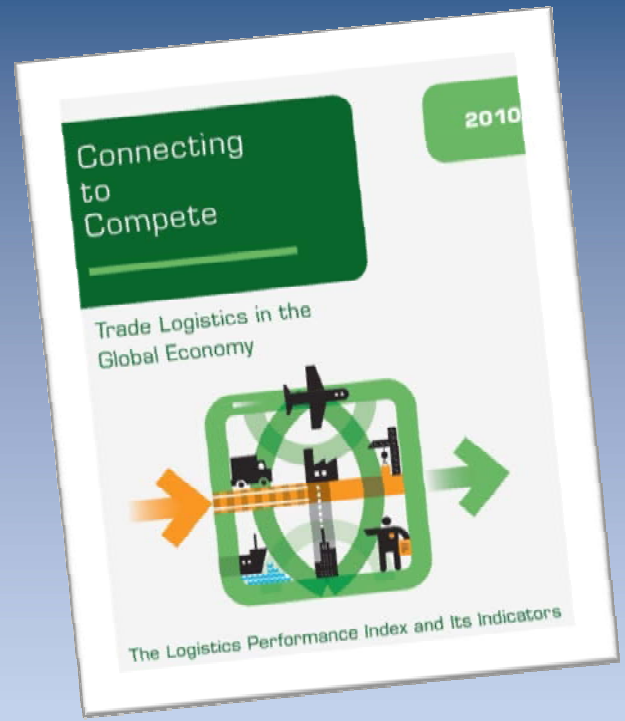
Introduction

- Survey covers the 2008 reporting year
- Survey includes the following:
  - Cost of Logistics
    - The impact of externalities on transport costs
  - Land Freight Transport Volumes and Costs
  - Cost of Bad Roads to the Economy – Case Study
  - Green Logistics and Sustainability – Case Study

World Bank: LPI 2010

- South Africa rated **28th out of 155** countries on the world Logistics Performance Index (LPI) with a score of **3.46**
- SA ranks no 1 of the upper middle income countries
- SA amongst the top 10 logistics over-performers (high income countries excl.)



The importance of efficient logistics for trade and growth is now widely acknowledged. Analysis based on the 2007 LPI or similar information has shown that better logistics performance is strongly associated with trade expansion, export diversification, ability to attract foreign direct investments and economic growth

– Worldbank LPI 2010

Improving logistics performance has become an important development policy objective in recent years because logistics have a major impact on economic activity

– Worldbank LPI 2010

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The Costs of Logistics

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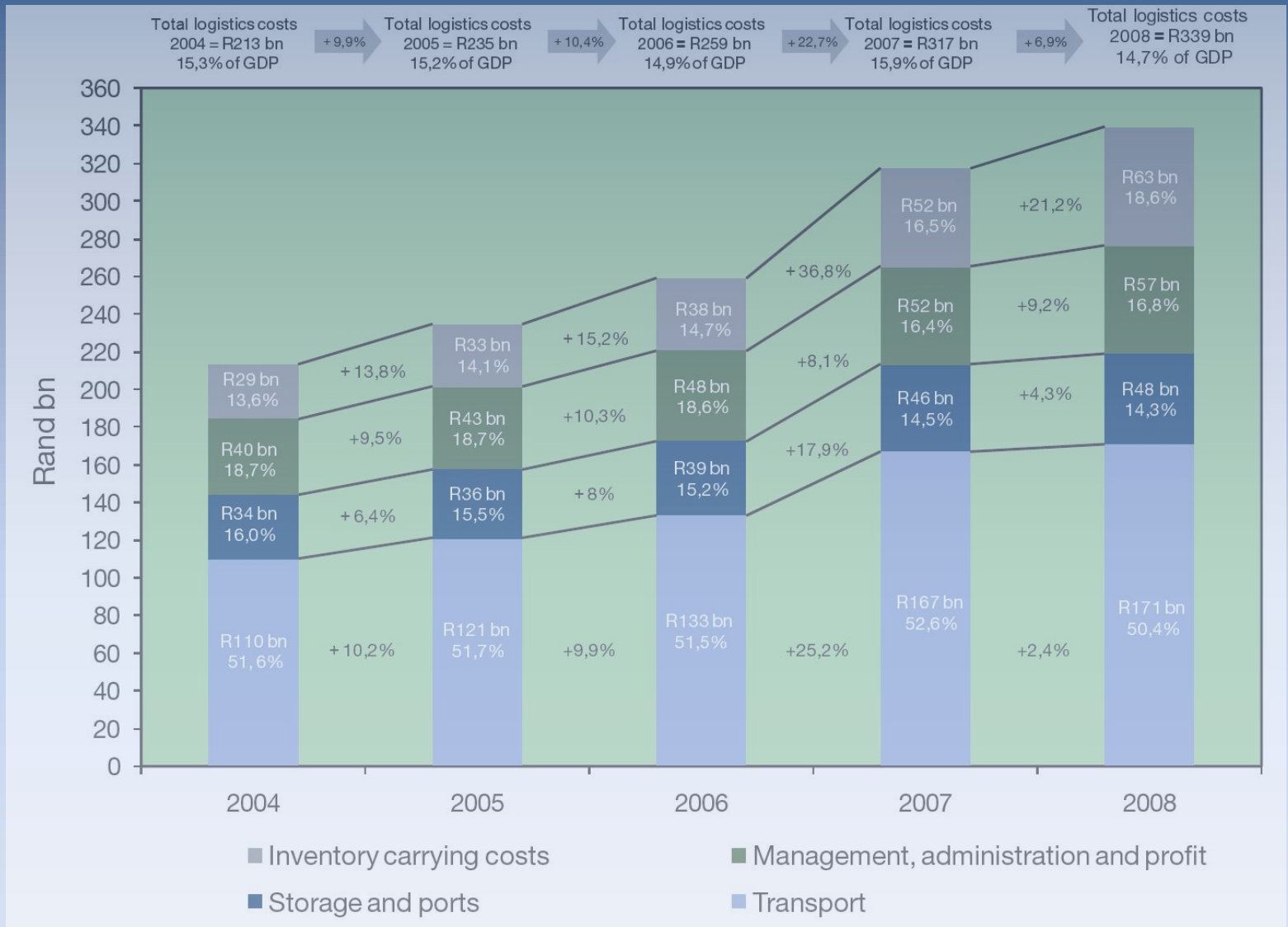
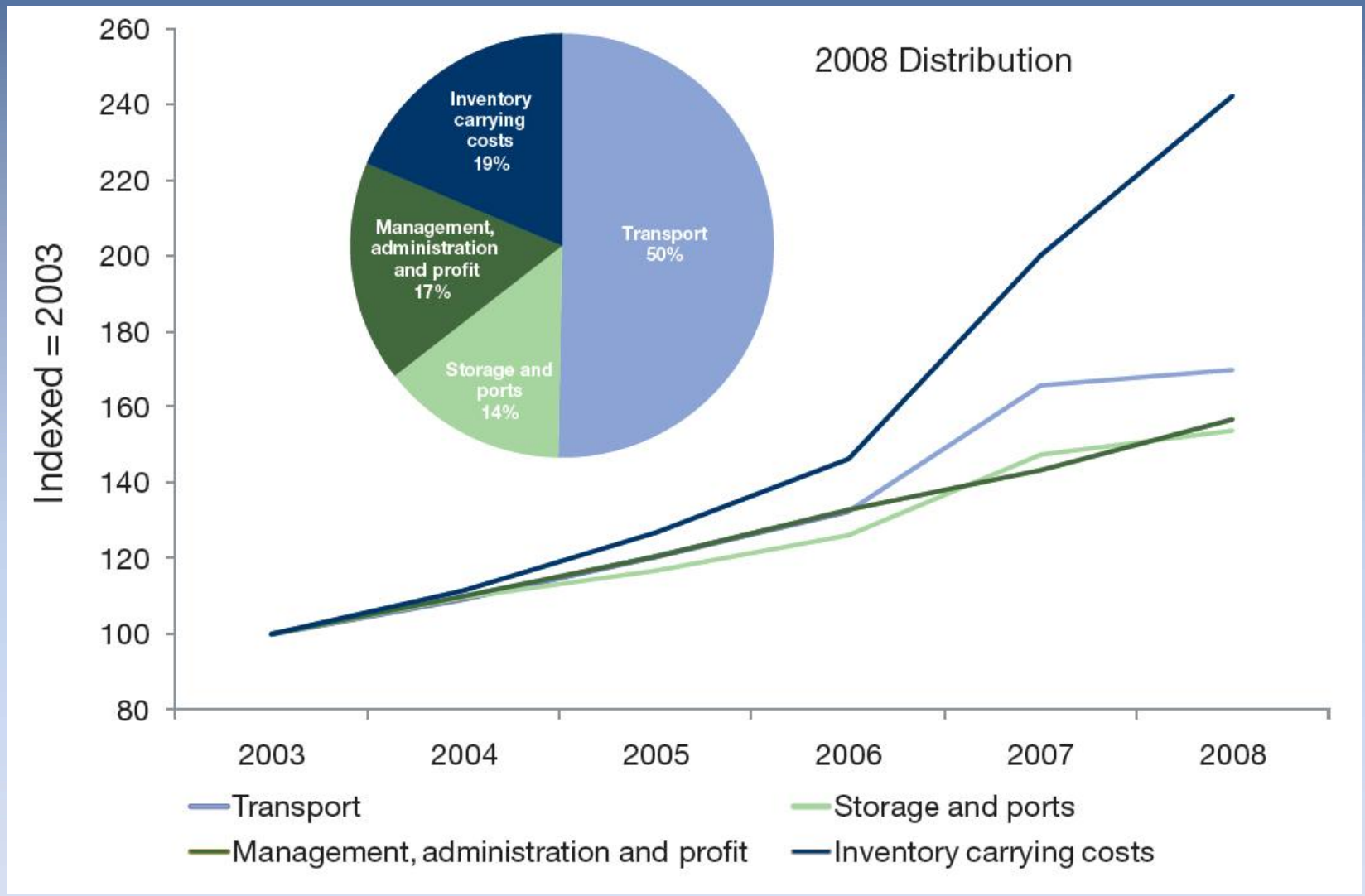
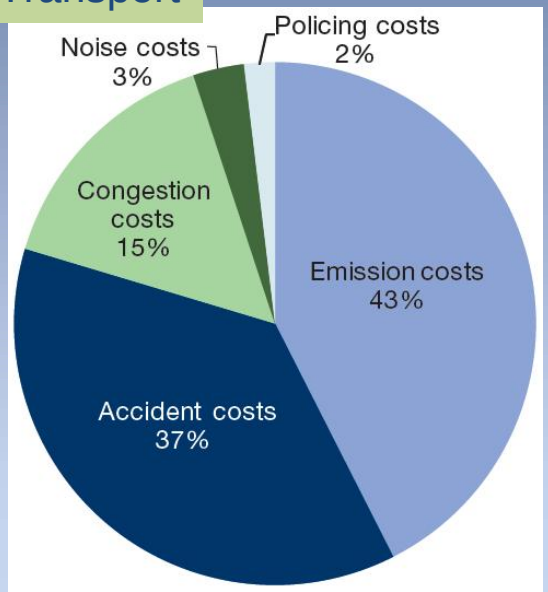

Total logistics costs 2004 = R213 bn 15,3% of GDP
+9,9%
Total logistics costs 2005 = R235 bn 15,2% of GDP
+10,4%
Total logistics costs 2006 = R259 bn 14,9% of GDP
+22,7%
Total logistics costs 2007 = R317 bn 15,9% of GDP
+6,9%
Total logistics costs 2008 = R339 bn 14,7% of GDP
Rand bn
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
2004
2005
2006
2007
2008
R29 bn 13,6%
R40 bn 18,7%
R34 bn 16,0%
R110 bn 51,6%
+13,8%
+9,5%
+6,4%
+10,2%
R33 bn 14,1%
R43 bn 18,7%
R36 bn 15,5%
R121 bn 51,7%
+15,2%
+10,3%
+8%
+9,9%
R38 bn 14,7%
R48 bn 18,6%
R39 bn 15,2%
R133 bn 51,5%
+36,8%
+8,1%
+17,9%
+25,2%
R52 bn 16,5%
R52 bn 16,4%
R46 bn 14,5%
R167 bn 52,6%
+21,2%
+9,2%
+4,3%
+2,4%
R63 bn 18,6%
R57 bn 16,8%
R48 bn 14,3%
R171 bn 50,4%
Inventory carrying costs
Management, administration and profit
Storage and ports
Transport

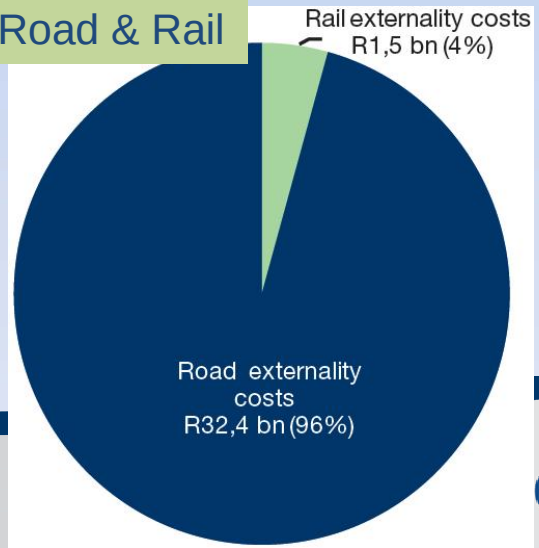

2008 Distribution
Inventory carrying costs 19%
Transport 50%
Management, administration and profit 17%
Storage and ports 14%
Indexed = 2003
260
240
220
200
180
160
140
120
100
80
2003
2004
2005
2006
2007
2008
Transport
Storage and ports
Management, administration and profit
Inventory carrying costs

The impact of externality costs on transport costs

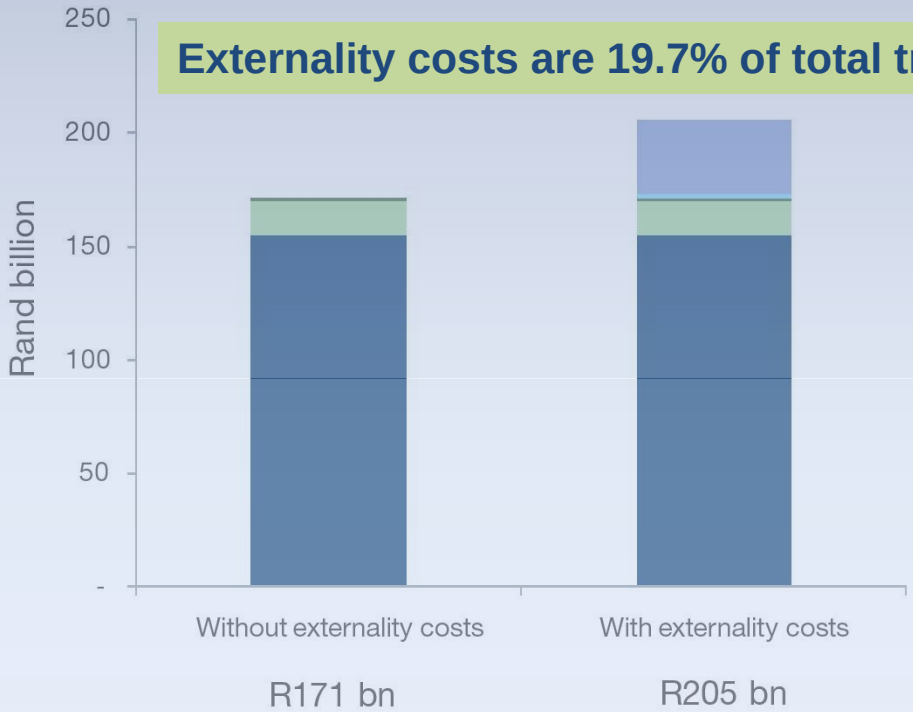
Transport



Road & Rail



Externality costs are 19.7% of total transport costs



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Land Freight Transport Volumes

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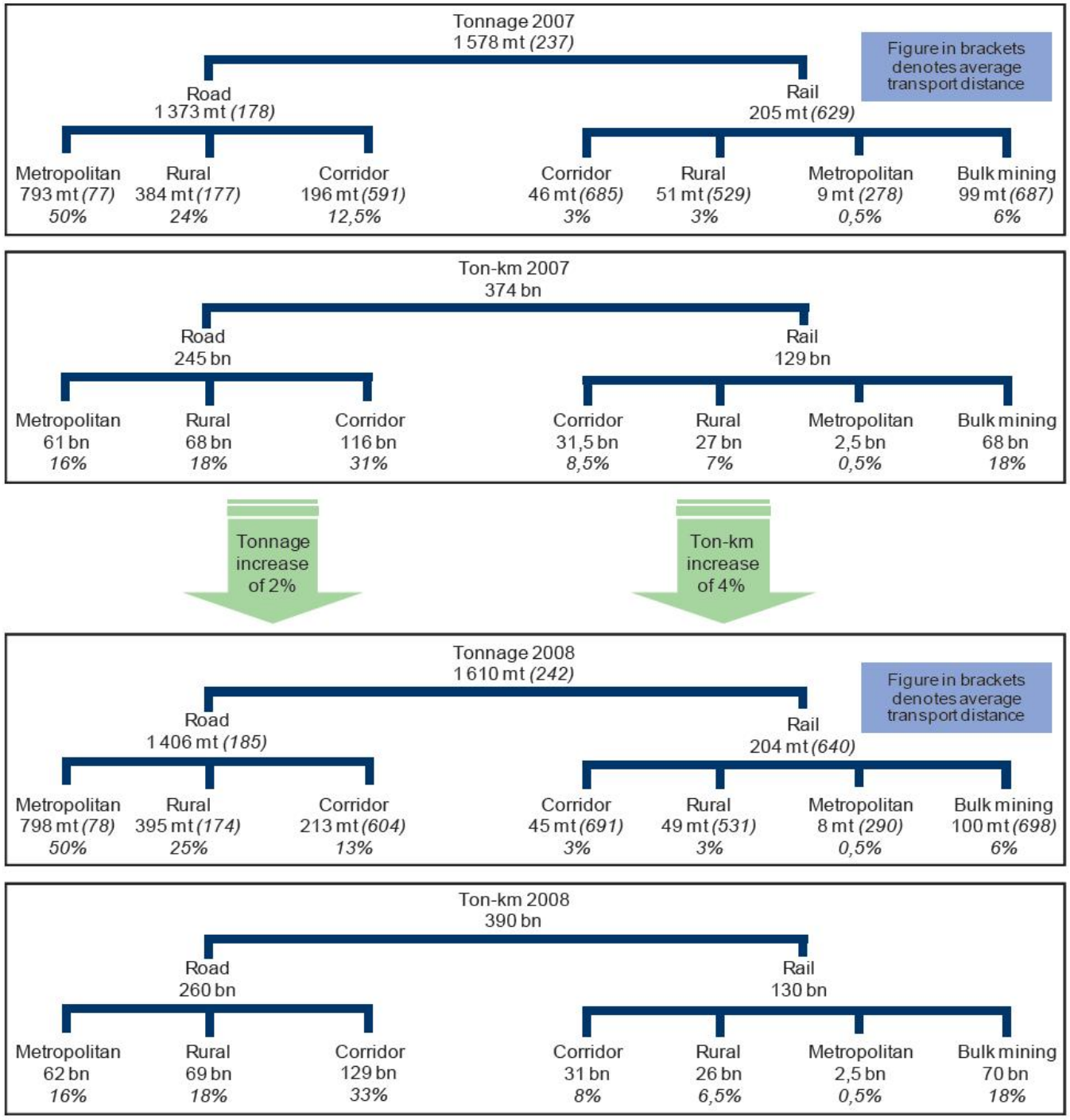
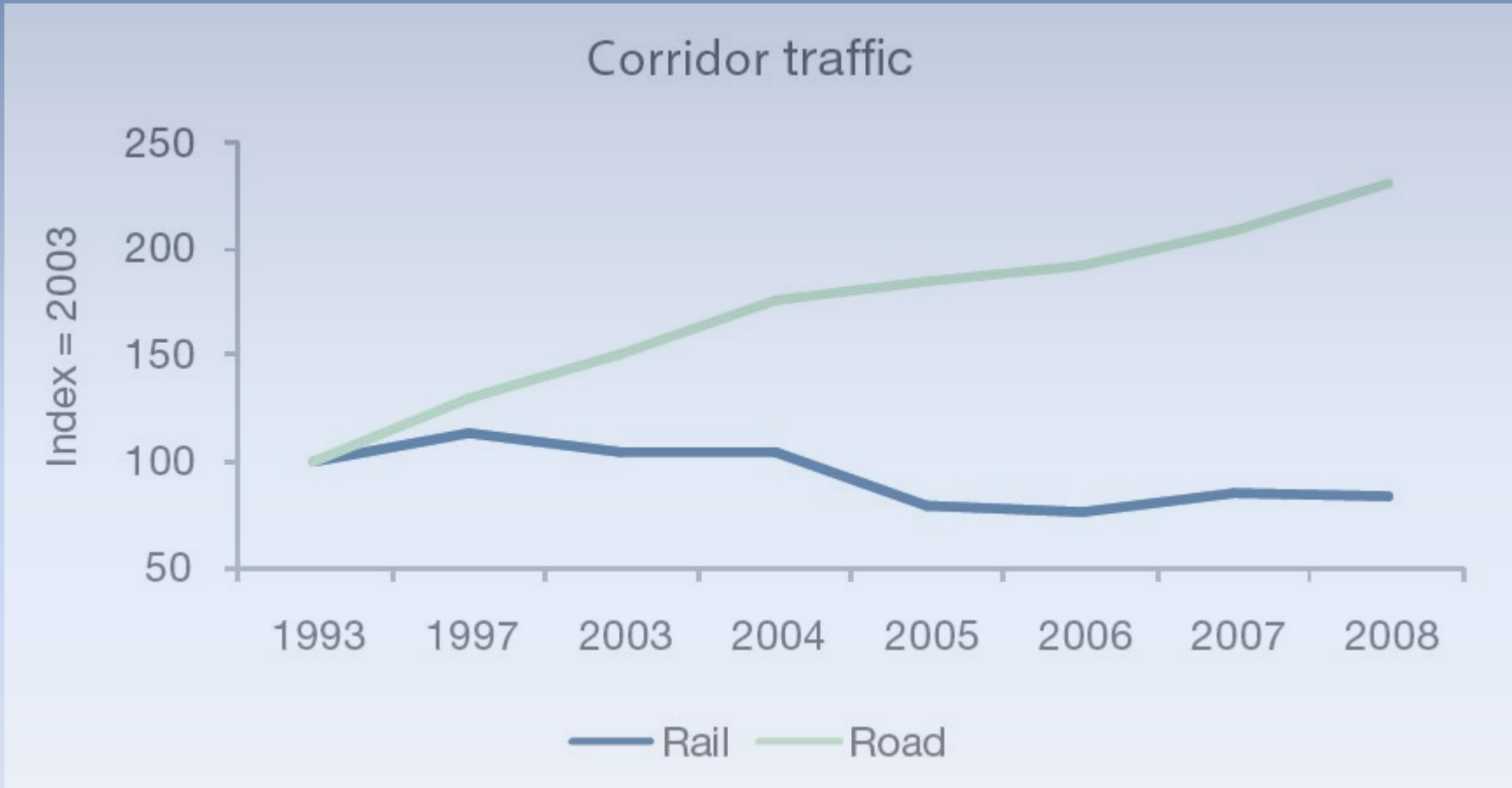

Tonnage 2007
1 578 mt (237)
Figure in brackets denotes average transport distance
Road
1 373 mt (178)
Rail
205 mt (629)
Metropolitan
793 mt (77)
50%
Rural
384 mt (177)
24%
Corridor
196 mt (591)
12,5%
Corridor
46 mt (685)
3%
Rural
51 mt (529)
3%
Metropolitan
9 mt (278)
0,5%
Bulk mining
99 mt (687)
6%
Ton-km 2007
374 bn
Road
245 bn
Rail
129 bn
Metropolitan
61 bn
16%
Rural
68 bn
18%
Corridor
116 bn
31%
Corridor
31,5 bn
8,5%
Rural
27 bn
7%
Metropolitan
2,5 bn
0,5%
Bulk mining
68 bn
18%
Tonnage increase of 2%
Ton-km increase of 4%
Tonnage 2008
1 610 mt (242)
Figure in brackets denotes average transport distance
Road
1 406 mt (185)
Rail
204 mt (640)
Metropolitan
798 mt (78)
50%
Rural
395 mt (174)
25%
Corridor
213 mt (604)
13%
Corridor
45 mt (691)
3%
Rural
49 mt (531)
3%
Metropolitan
8 mt (290)
0,5%
Bulk mining
100 mt (698)
6%
Ton-km 2008
390 bn
Road
260 bn
Rail
130 bn
Metropolitan
62 bn
16%
Rural
69 bn
18%
Corridor
129 bn
33%
Corridor
31 bn
8%
Rural
26 bn
6,5%
Metropolitan
2,5 bn
0,5%
Bulk mining
70 bn
18%

Corridor transport market share



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Cost of Bad Roads to the Economy

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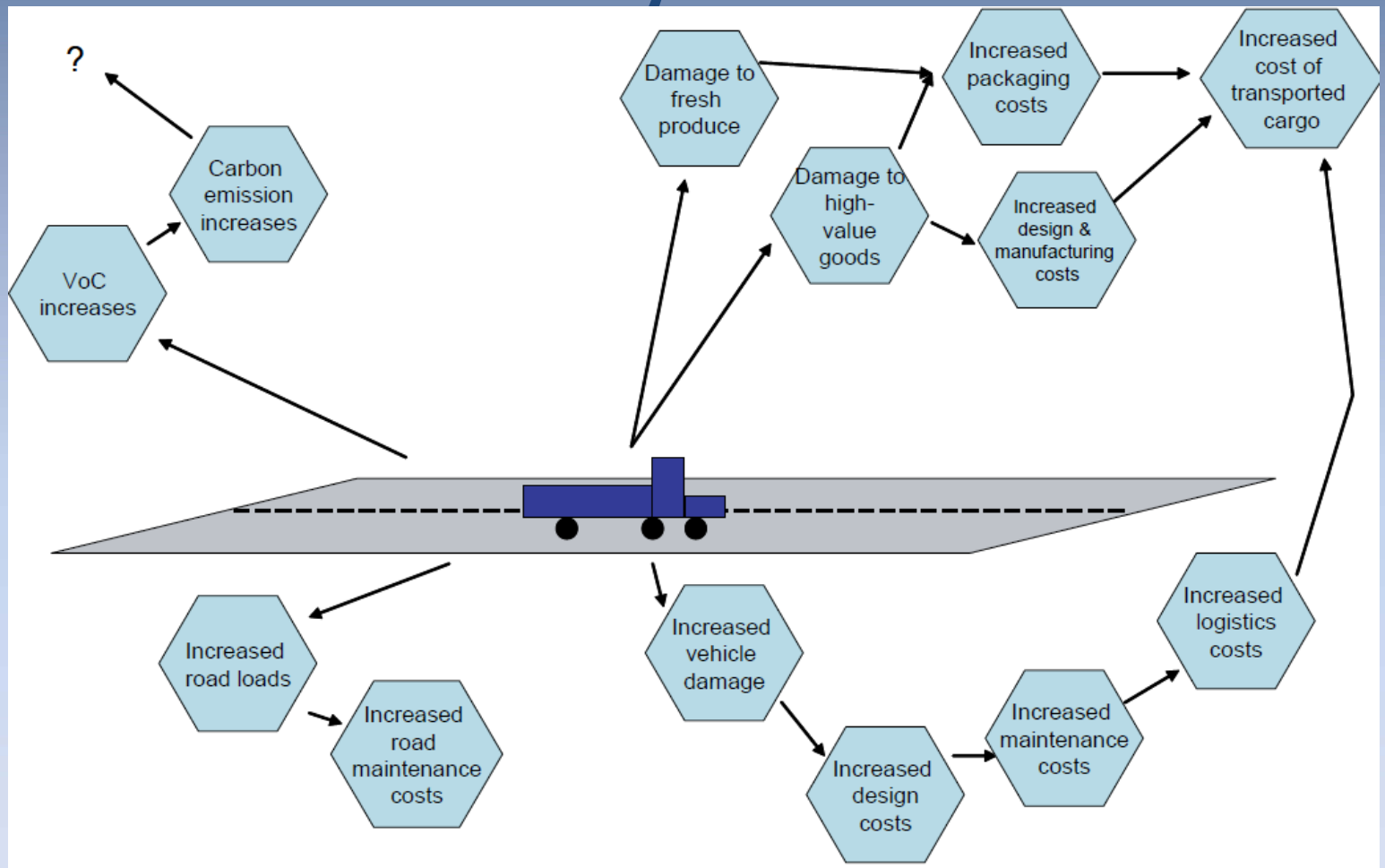
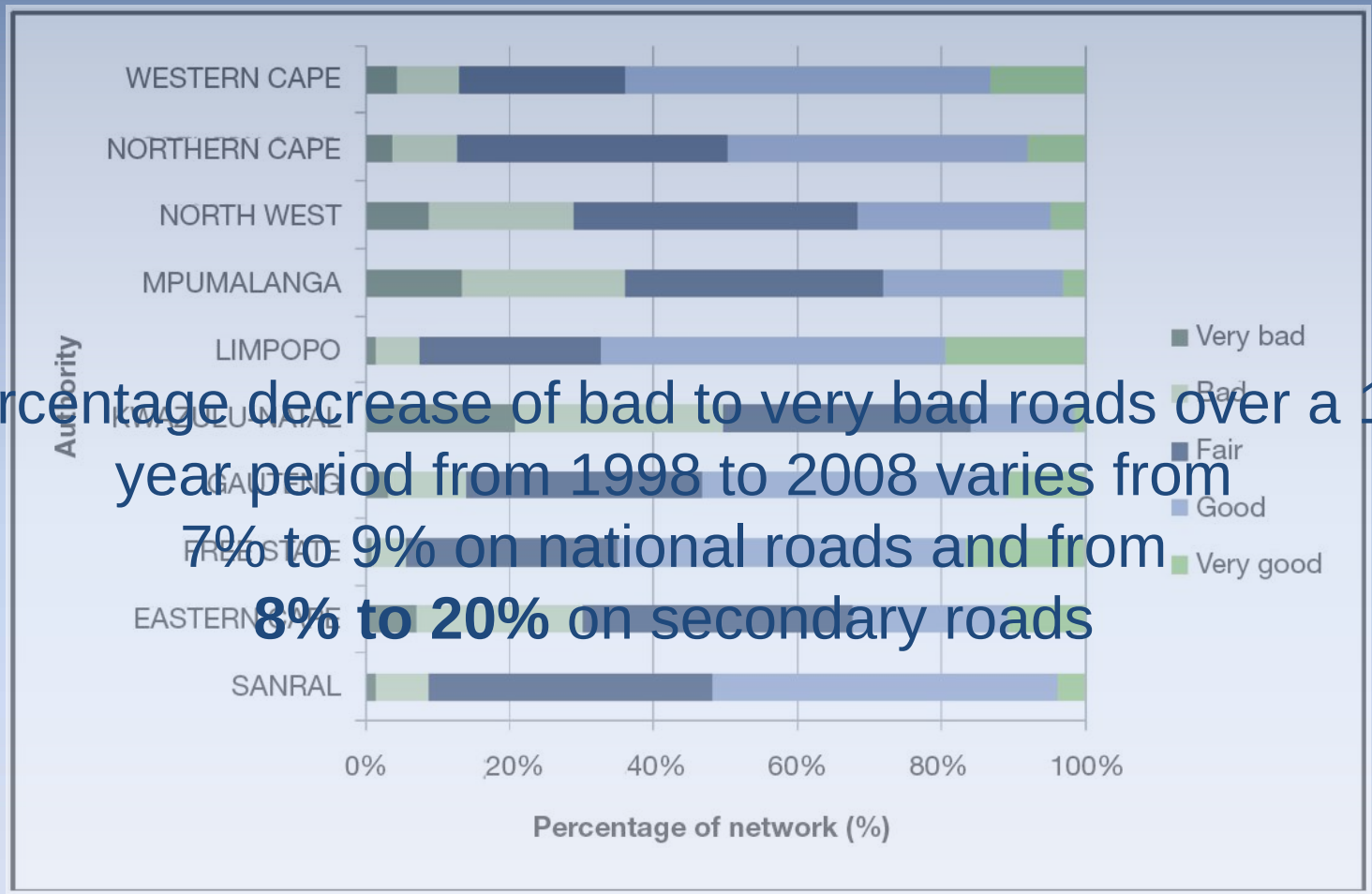
Potential effects of deteriorating road quality on the broader economy



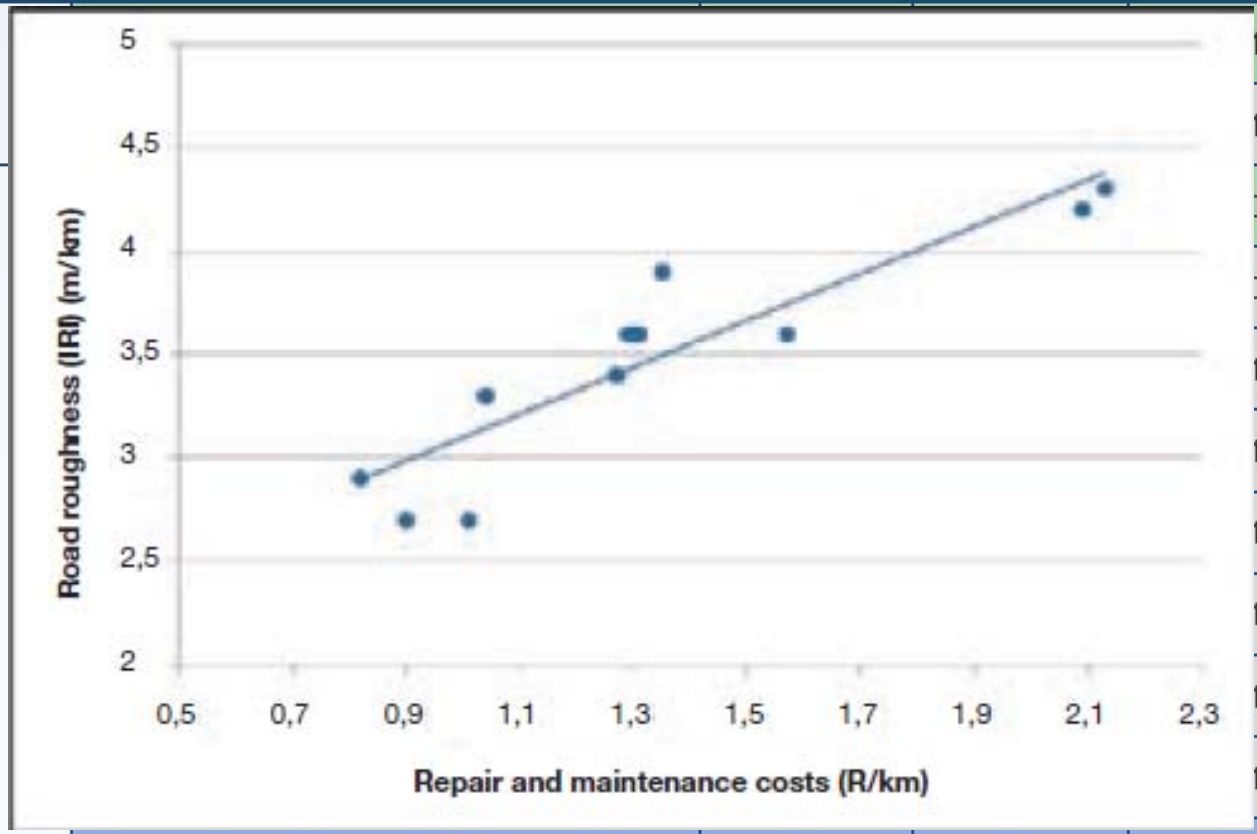
Summary of SA Road Network Condition



Percentage decrease of bad to very bad roads over a 10 year period from 1998 to 2008 varies from 7% to 9% on national roads and from **8% to 20%** on secondary roads

Case Study –
Vehicle maintenance & repair costs for routes with different IRI's

Company	Route information	Average IRI (m/km)	Road condition rating	Average maintenance and repair costs (R/km)
A				1,01
				1,30
B				0,90
				0,82
				1,27
				1,04
				1,31
				1,57
				1,29
				1,35
	Newcastle to Gauteng (N11 and N17)	4,2	Bad	2,09
	Gauteng to construction sites	4,3	Bad	2,13



Case Study Example

Company	Route information	Average IRI (m/km)	Road condition rating	Average maintenance and repair costs (R/km)
B	Gauteng to Durban (N3)	2,7	Good	0,90
	Newcastle to Gauteng (N11 and N17)	4,2	Bad	2,09

- **Truck 1** travelling for 300km between Gauteng & Durban on the N3
  - average maintenance & repair cost = **R270** per trip
- **Truck 2** travelling between Newcastle and Gauteng (300km)
  - average maintenance & repair cost = **R627** per trip
- Average annual maintenance and repair cost
  - **Truck 1 = R54 000**
  - **Truck 2 = R125 400**

  Significant increase of up to **132%**

Potential increases due to worsening road conditions

Road condition	Average maintenance and repair costs (R/km)	Average percentage increase in the truck maintenance and repair costs	Average percentage increase in company logistics costs
Good	R0,96	-	-
Fair	R1,24	30,24%	2,49%
Bad	R2,11	120,94%	9,97%

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Thank You

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Green Logistics & Sustainability

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SA Transport & the Environment (SBT)

- Up to 75% of SA companies' carbon footprints
- Fastest growing emitting sector
- SA's "required by science" targets:

  reducing annual emissions by:

  1300Mt CO_2-eq/yr by 2050

  – transport transformation
- 9% final energy demand reduction, 2015

  - *Government's energy efficiency strategy (2005)*
- Challenges: fuels, vehicle technology, infrastructure & behavioural changes.
- Bio-fuels alone cannot solve the problem
- Overall package – a range of interventions:
  - modal shifts
  - technology transfer

- Perception persists: transforming to a green supply chain will results in reduced profit margins.
- Research & case studies are proving opportunities to increase value and save money

Many opportunities to reduce emissions carry no net life-cycle costs – the upfront investment more than pays for itself through lower energy or material usage.
– Climate change & supply chain management, McKinsey Quarterly

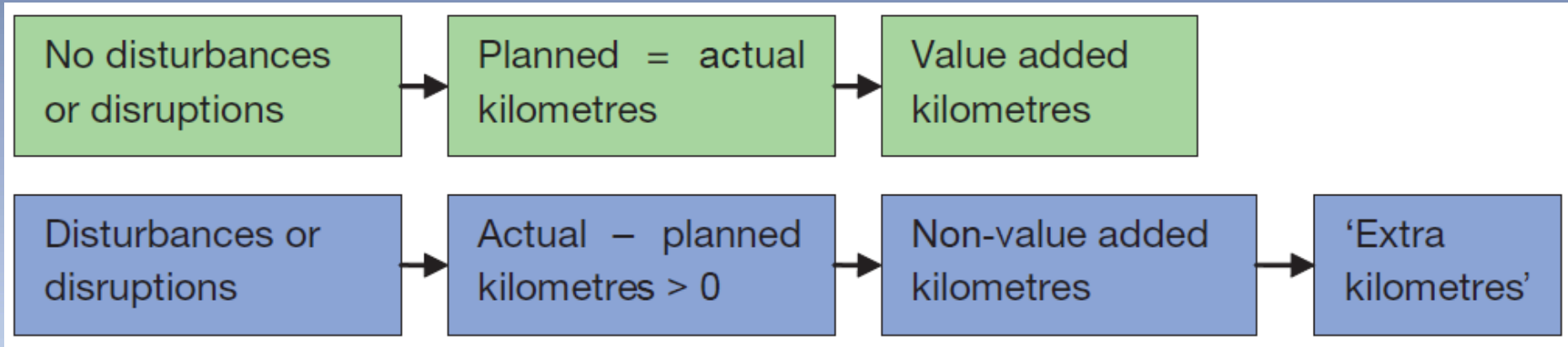
A South African FMCG Case Study:

Scene Setting

- 200 Stores
- 3DCs: Centurion DC
  - Secondary Distribution
    - 400 Deliveries / day
    - 80 Vehicles; 281 Drivers
- Fixed Delivery Schedule
  - Special, balance & promo
- SLA: 98% on time arrival at store
  - 15 min window for arrival time
- Delivery Restrictions

"I see Mr.Hodges has gone environmental."

Extra Kilometres: Theory



Def. Extra kilometres:

The difference between the number of kilometres vehicles actually run, & the km they would have needed to run if transport planning is undertaken with accurate & timely information on the volumes to be moved, &/or no operational failures disrupt the delivery process.

- Economic Impact: Additional fuel required
- Environmental Impact: Additional CO_2 produced

Extra Kilometres: Approach

- Data Collection & Analysis Approach:

	Centurion	Cape Town
Information Sources	• Individual trip sheets • Summary of extras	• Consolidated daily report
Approach	• Categorising all causes of extra kilometres found in an Excel spreadsheet • Extrapolating weekly extra kilometres to annual estimates	

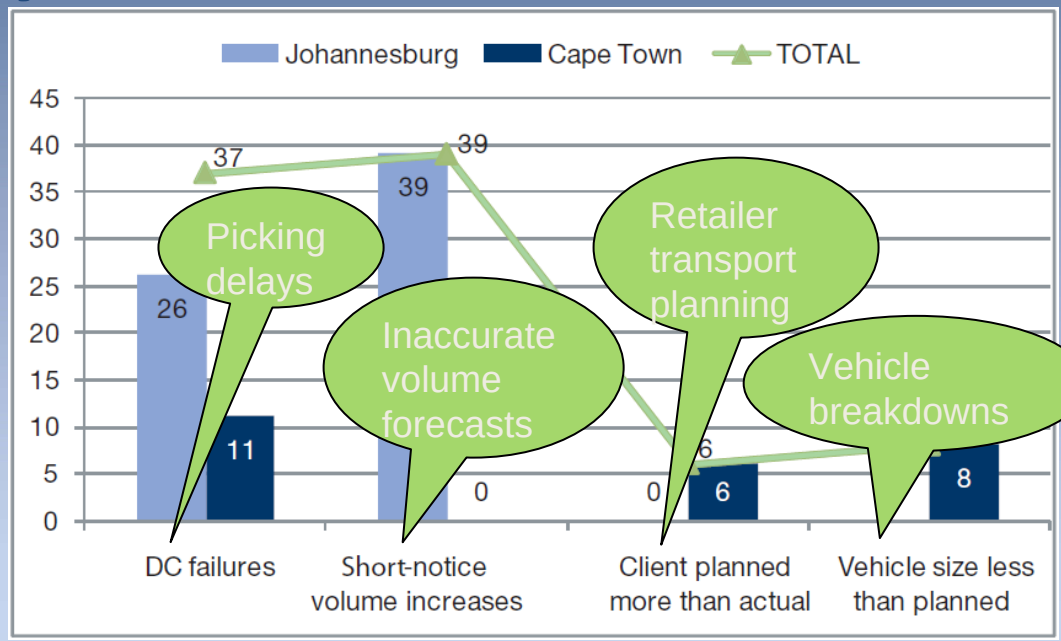
Extra Kilometres: Results

- Impact of extra kilometres on two secondary Distribution Centres in a typical week

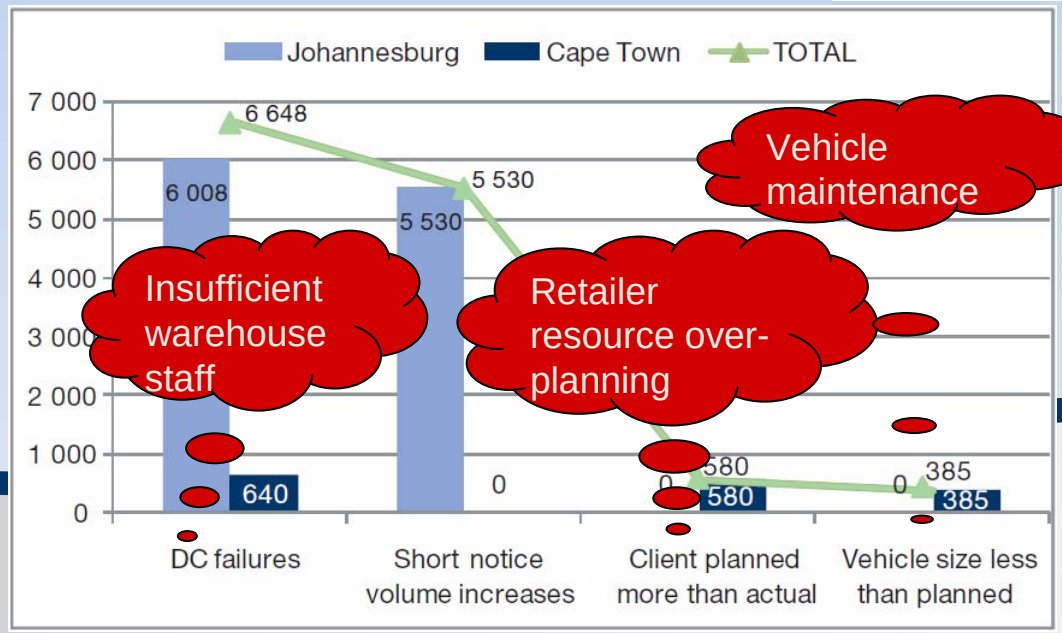
	Johannesburg	Cape Town	Overall
Total kilometres run	172 000 km	35 000 km	207 000 km
Extra kilometres	11 538 km	1 605 km	13 143 km
% Extra kilometres	6,71%	4,59%	6,35%
Costs of extra kilometres	R149 994	R20 865	R170 859
Kg of CO_2 due to extra kilometres*	18 100 kg	2 500 kg	20 600 kg

Extra Kilometres: Analysis

Number of incidents creating extra kilometres per category



Amount of extra kilometres created per incident category



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Extra Kilometres - Conclusions

Extra Kilometres:

- a diagnostic tool to assess the efficiency of the transport function within distribution networks in terms of non-value adding kilometres / unnecessary vehicle usages
- determine the causes of unnecessary kilometres & estimate the risk they represent
  - to make a more explicit link between supply chain uncertainty and deviations in transport execution / performance

- Economic Impact: R8.88m more fuel
- Environmental Impact: 1071t more CO_2

- Collaboration between the LSP & retailer to reduce extra km by finding mechanisms to improve:
  - the volume demand planning and
  - product picking processes

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Developing a South African Paradigm of Humanitarian Logistics

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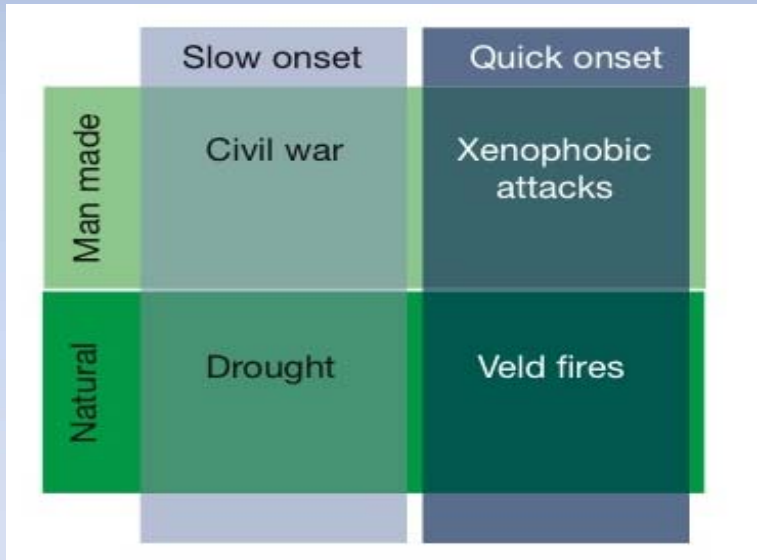
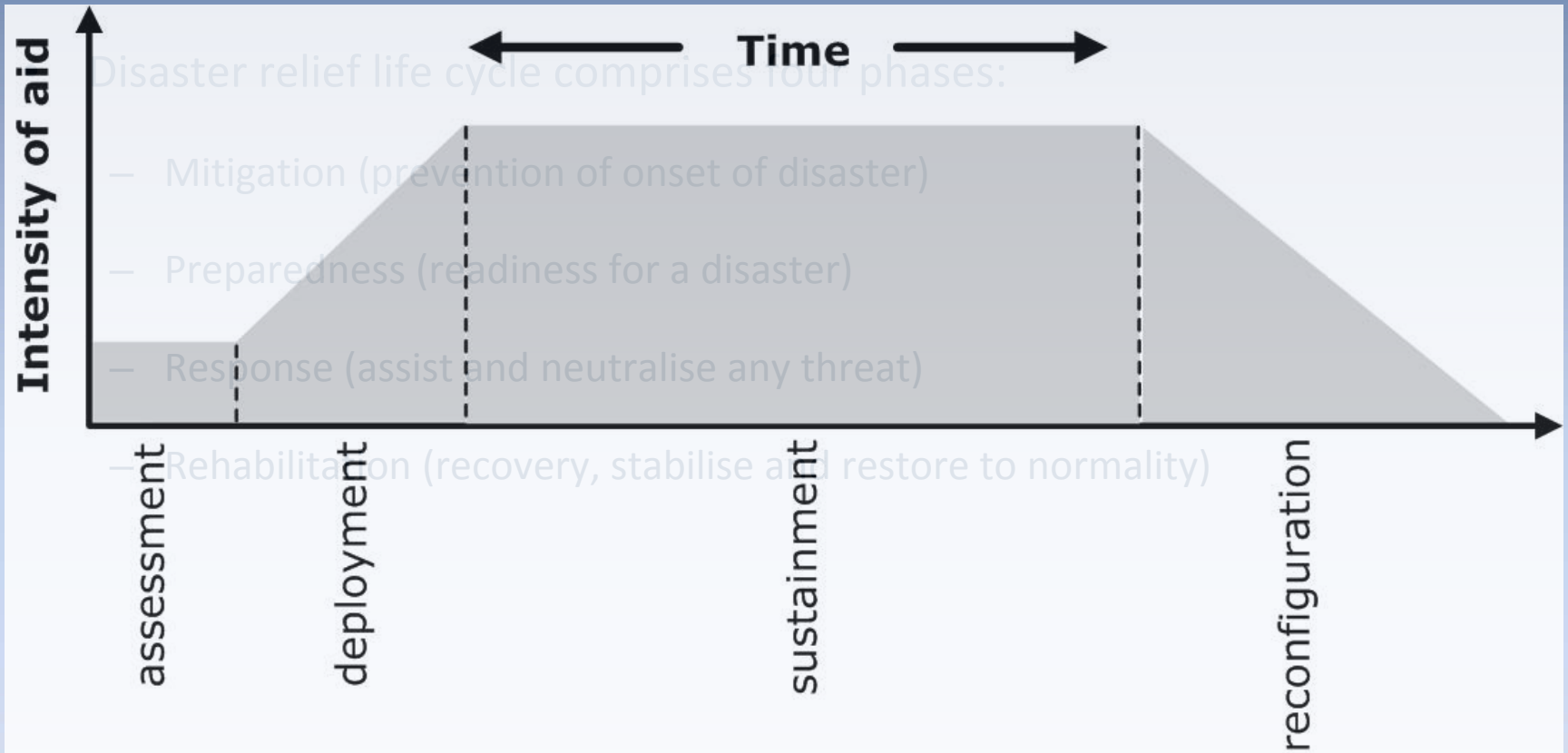
Humanitarian logistics

- "Humanitarian logistics" is the term used for relief supply chains
- Humanitarian logistics accounts for 80% of disaster relief activities
- Role of the State of Logistics is to create awareness of this new field



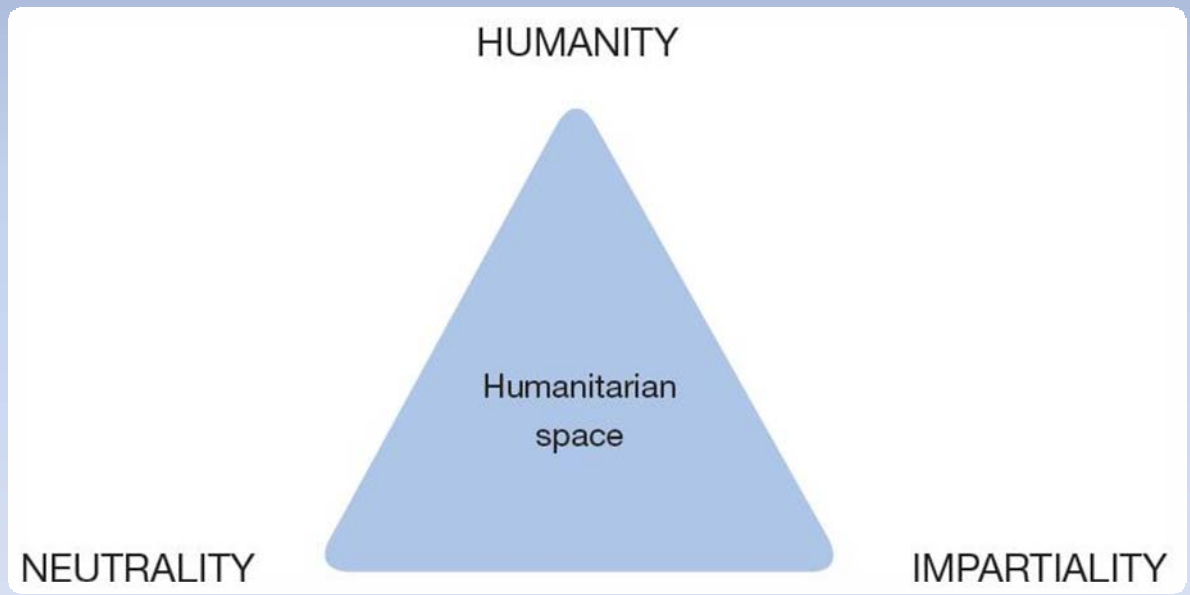
Humanitarian logistics



Variation in intensity of aid as response to a disaster progresses

Humanitarian logistics

- Will assist everyone in need wherever found
- Will not influence the outcome of a conflict with their intervention
- Will not favour one group of beneficiaries over another



Humanitarian logistics

Humanitarian logistics is characterised by:

- Multiple stakeholders with individual political, social, economic or religious agendas. These agendas are often totally opposed.
- Lack of professionalism due to a lack of formalised training and high staff turnover;
- Great uncertainty with regard to:
  - the occurrence of disastrous events;
  - quantity and composition of demand generated by events;
  - origin, volume and composition of donations.
- Lack of institutionalised knowledge, knowledge sharing and data management;
- Lack of collaboration and cooperation between relief agencies; and
- Outdated systems, techniques and equipment.

Humanitarian logistics

The nature of South African disasters:

- Floods, droughts, fires, xenophobic attacks, HIV / Aids

But what about:

- Crime, illiteracy, unemployment, orphaned and vulnerable children, violence against women and children
- Case study: South African Breastmilk Reserve (SABR)
- **The South African paradigm qualifies operations as humanitarian based on the degree to which these operations fall within the humanitarian space and not necessarily whether these operations are in response to disastrous events**