



# Namdeb Operations

29 March 2006

*Presented by:* Chris Sivertsen  
General Manager



**NAMDEB**  
ON DIAMONDS WE BUILD

# Agenda

## 1. WHAT IS NAMDEB?

- Location
- Deposit
- History

## 2. SAFETY, HEALTH and ENVIRONMENTAL

## 3. FINANCIAL TRENDS

## 4. PRODUCTION

## 5. CONTINUOUS IMPROVEMENT

## 6. STRATEGIC BUSINESS PLAN

## 7. EXPLORATION and SAMPLING

## 8. STRATEGIC PROJECTS

- Capital program
- Pocket Beaches
- Marine Dredging Project
- Elizabeth Bay LoM Extension
- Inshore Project



# What is Namdeb?

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# What is Namdeb?

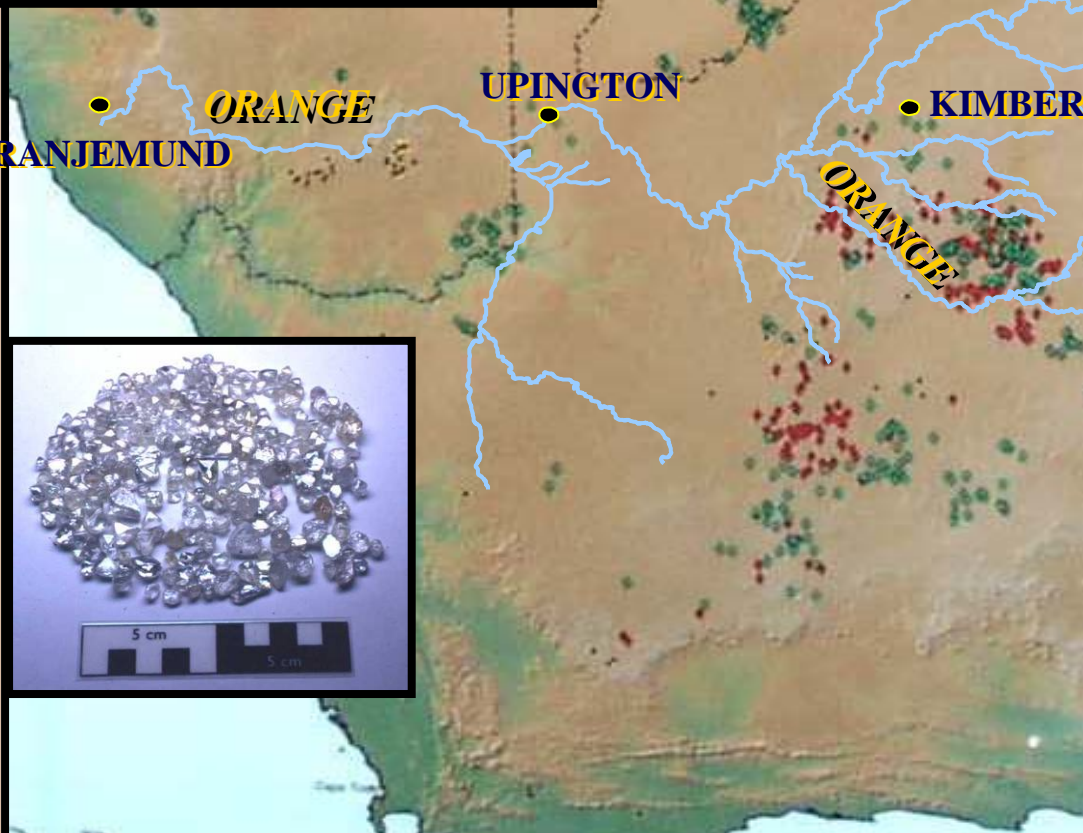
*... on a World Class Placer deposit*



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# Where did the diamonds come from?

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- Group I Kimberlites
- Group II Kimberlites
- Metapelites, Carbonatites etc.
- Other related rocks or unknown

# History

- First Diamond found in 1908 by Zacharias Lewala
- Extensive Mining by 1912, around Luderitz
- CDM formed in 1920
- Focus around Oranjemund from 1934
- Marine Mining first tested in 1960
- Namdeb created in 1994
- Over 80 million carats produced to date



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# Safety

## 2005 ACHIEVEMENTS

- 4 Million Fatality Free Man Shifts reached
- 30% Reduction in Minor Injuries against 2004
- Retained triple NOSCAR status
- Lowest ever LTI Severity rate

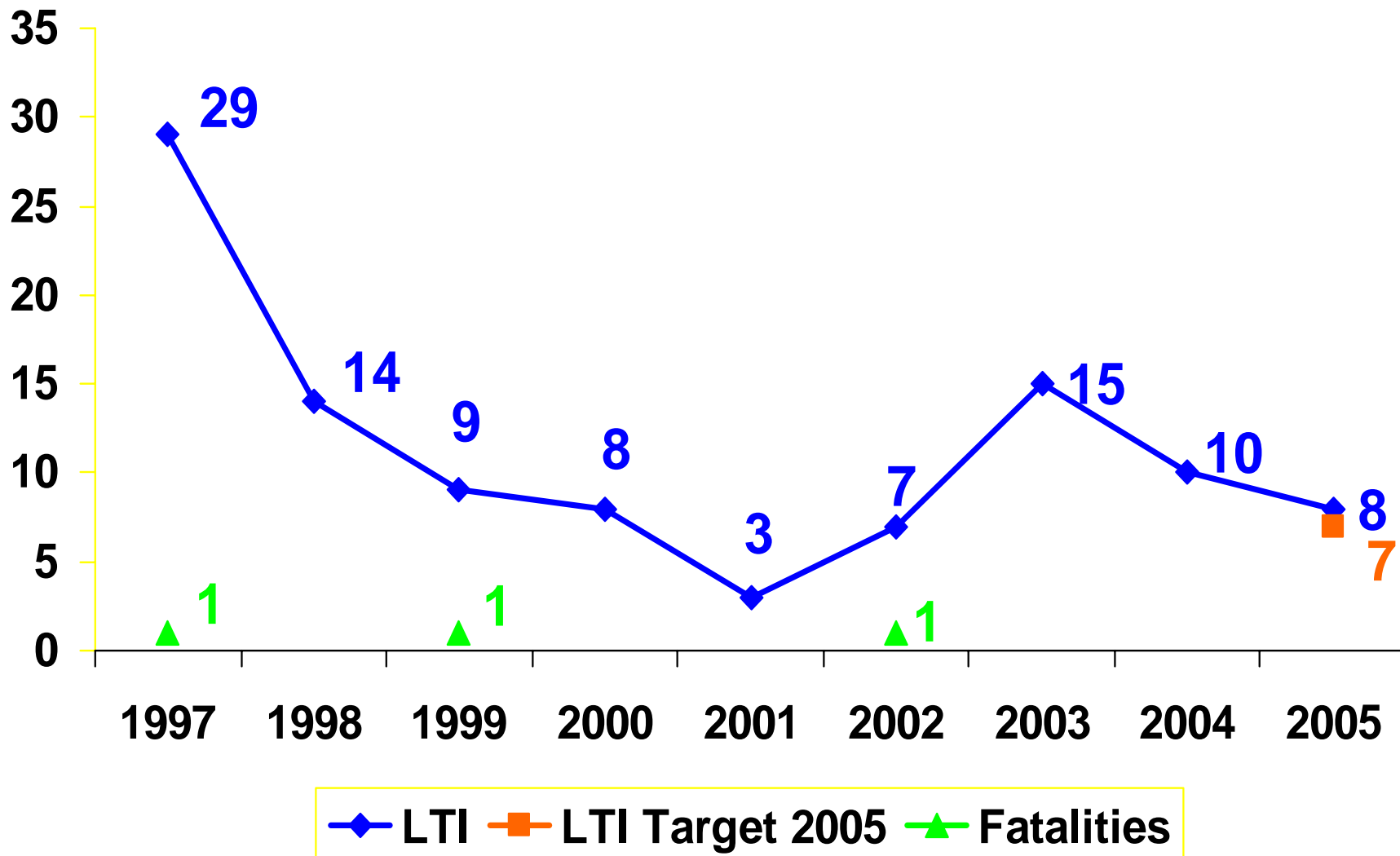
## NOSA NAMIBIA AWARDS

- All 3 operations placed on the International top 100 list for world class SHE performance
- MA1 – Best Surface Plant
- All operations awarded 5 Star Platinum status



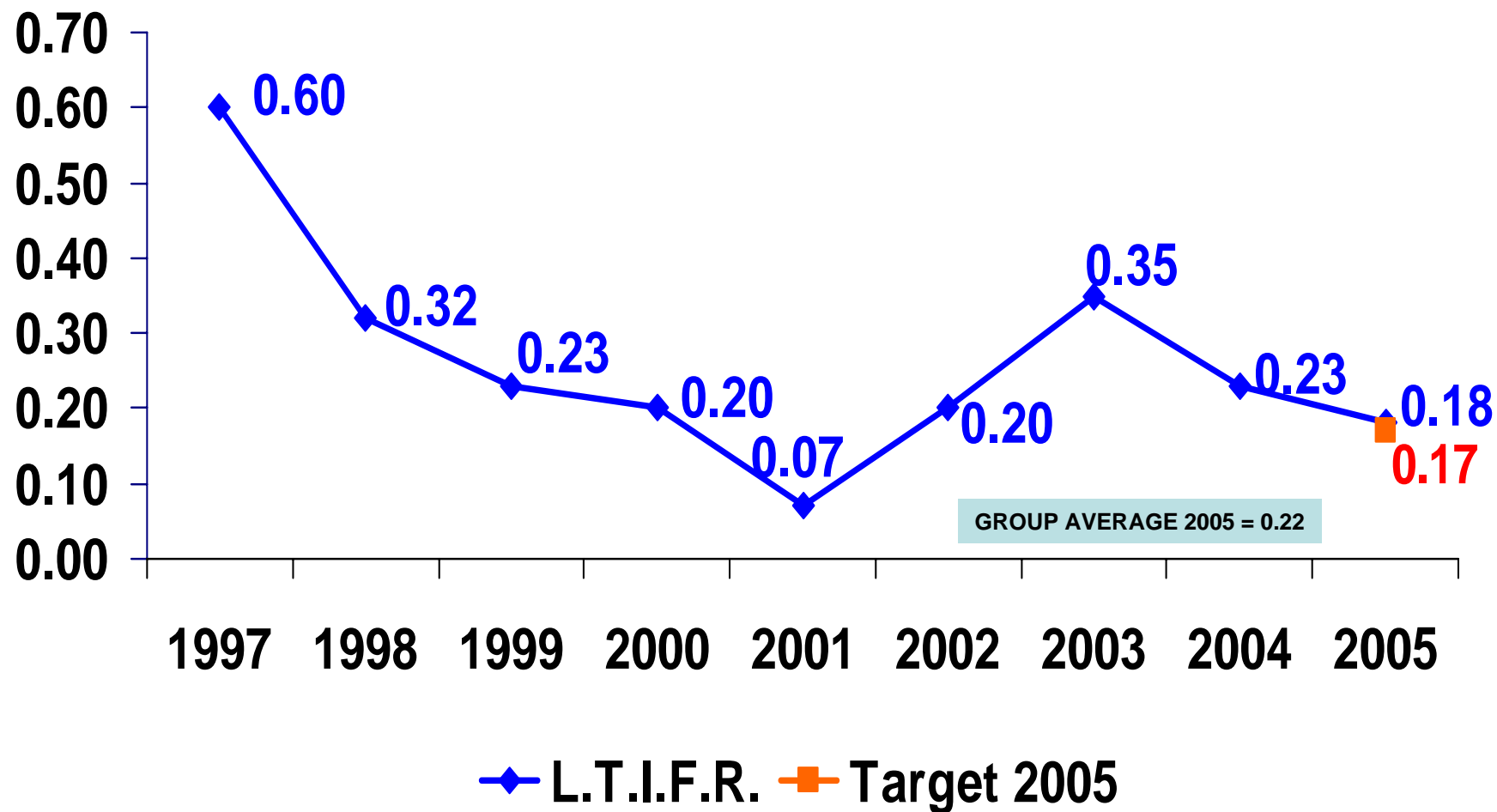
# Safety - 2

## 20% REDUCTION IN LOST TIME INJURIES



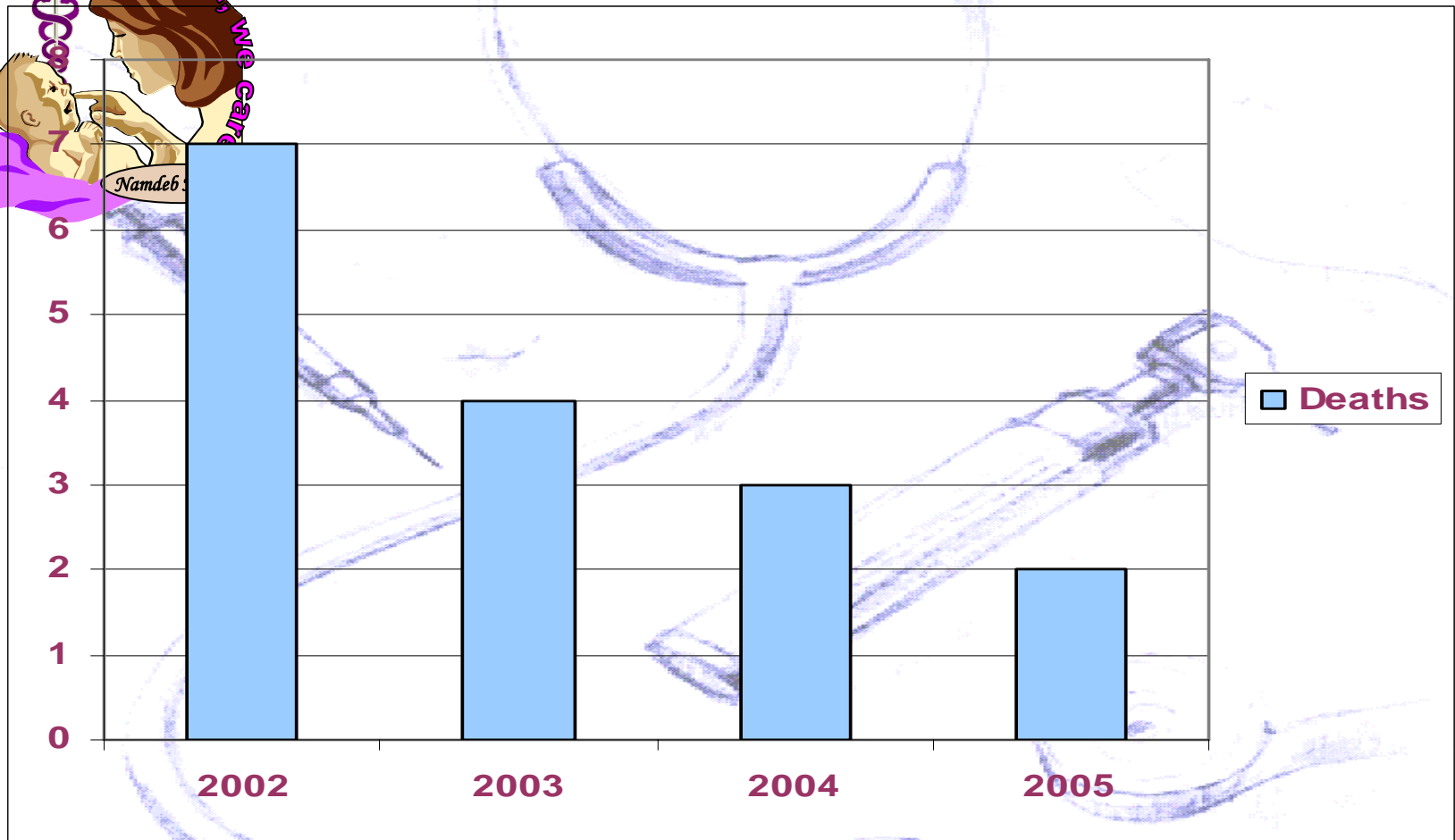
# Safety – 3

## Reduction in Lost Time Injury Frequency Rate



# AIDS RELATED DEATHS (ART benefit)

**163 Employees and/or Life Partners now on ART**



# Environmental

## ISO 14001 Audits

- Namdeb to be recommended for certification to new ISO 14001: 2004 version

## Simplified Environmental Management System Pilot Study

- Pocket Beaches site 2,3 and 4 selected

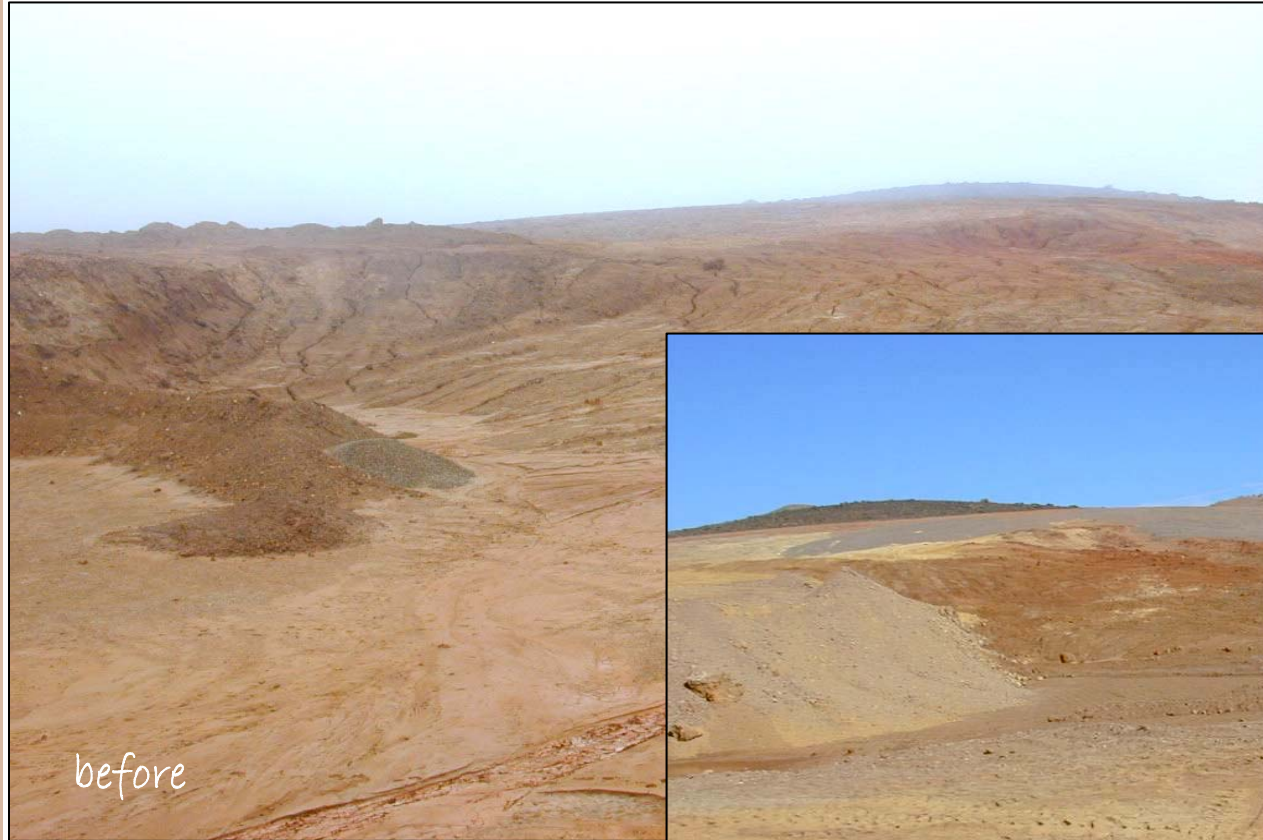
## Rehabilitation and Closure

- Draft plans for Orange River Mines and Pocket Beaches
- Class 0 Closure cost estimate completed
- Pilot studies initiated



# Environmental - 2

## Skilpadberg Rehabilitation Trial

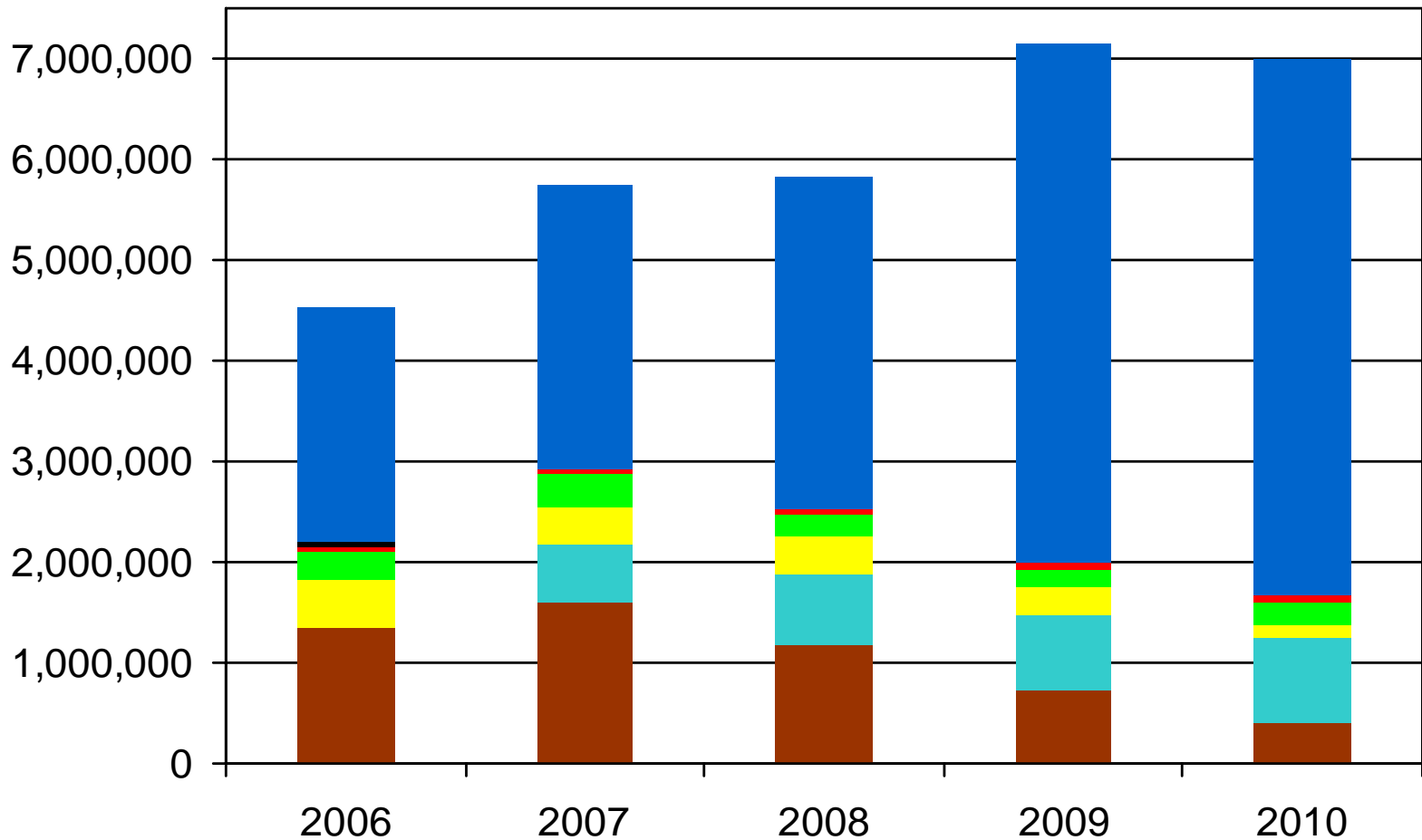


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# SBP Revenue Analysis by Area



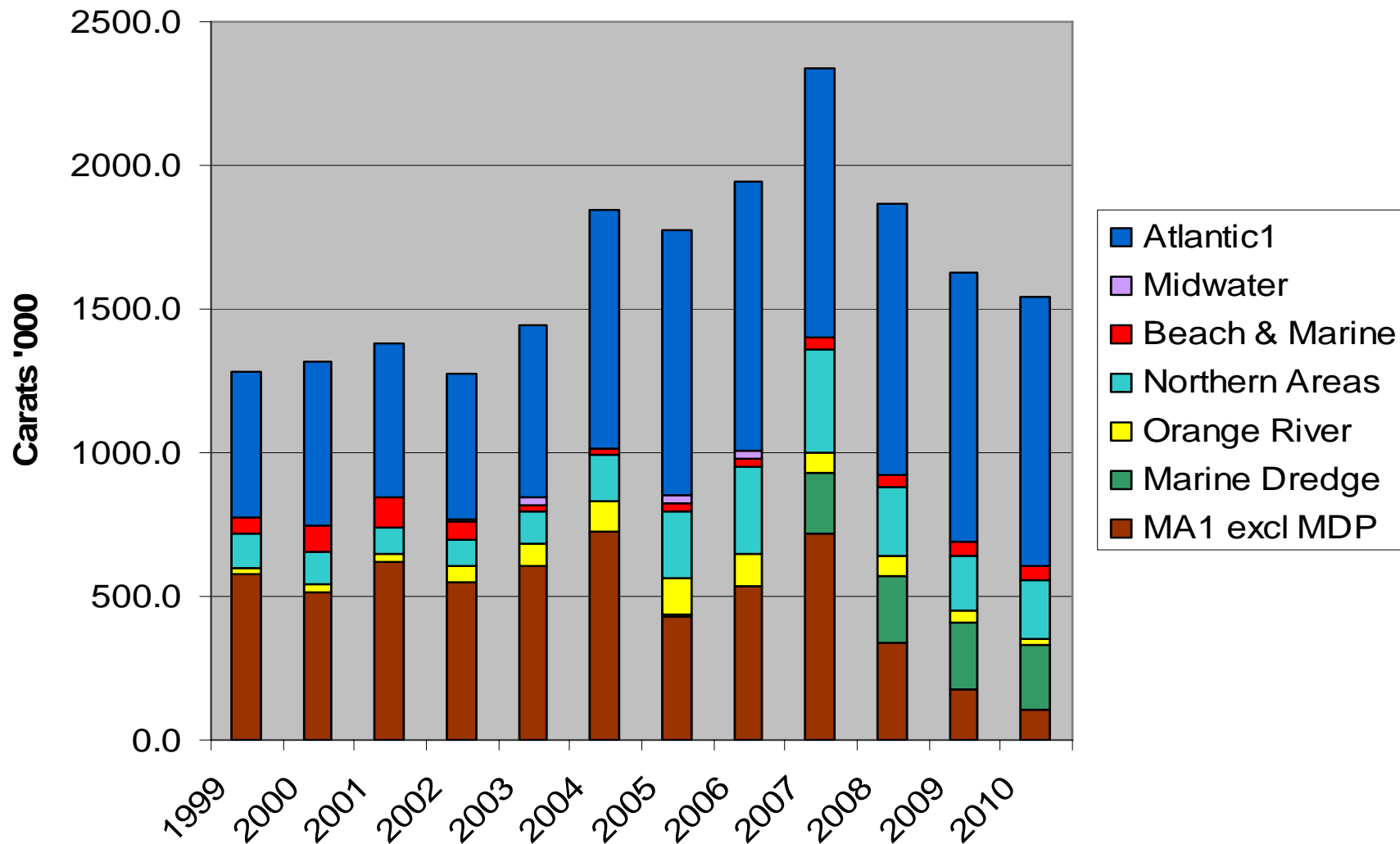
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# Production – Trend

## Namdeb Carat Production



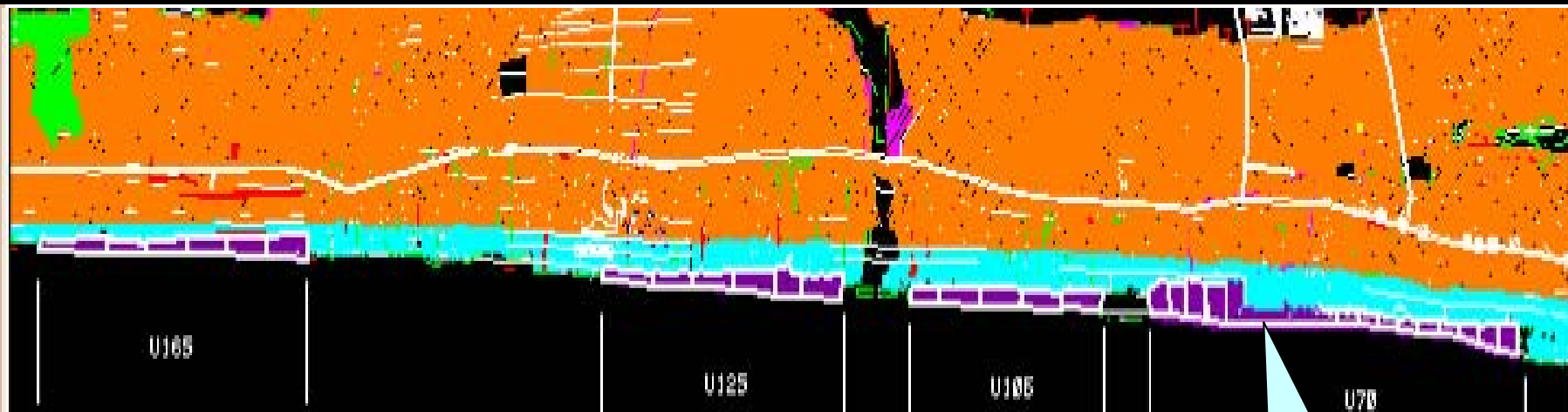
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# Continuous Improvement

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U 70 to U 90 accreted  
1.3 m tons & 65 000  
cts

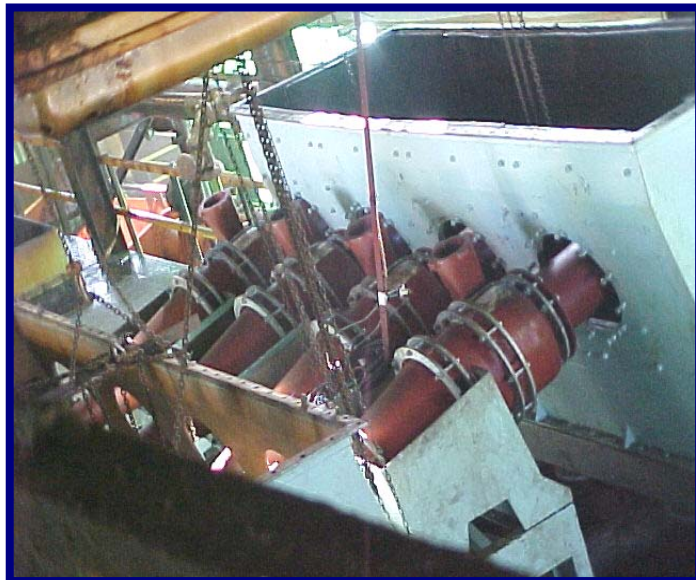
Total mineable accreted  
2.4m tons & 115 000 cts

## 3 Plant Accreted Beaches

# Continuous Improvement - 2

## 2 Plant Turnaround Strategy

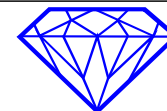
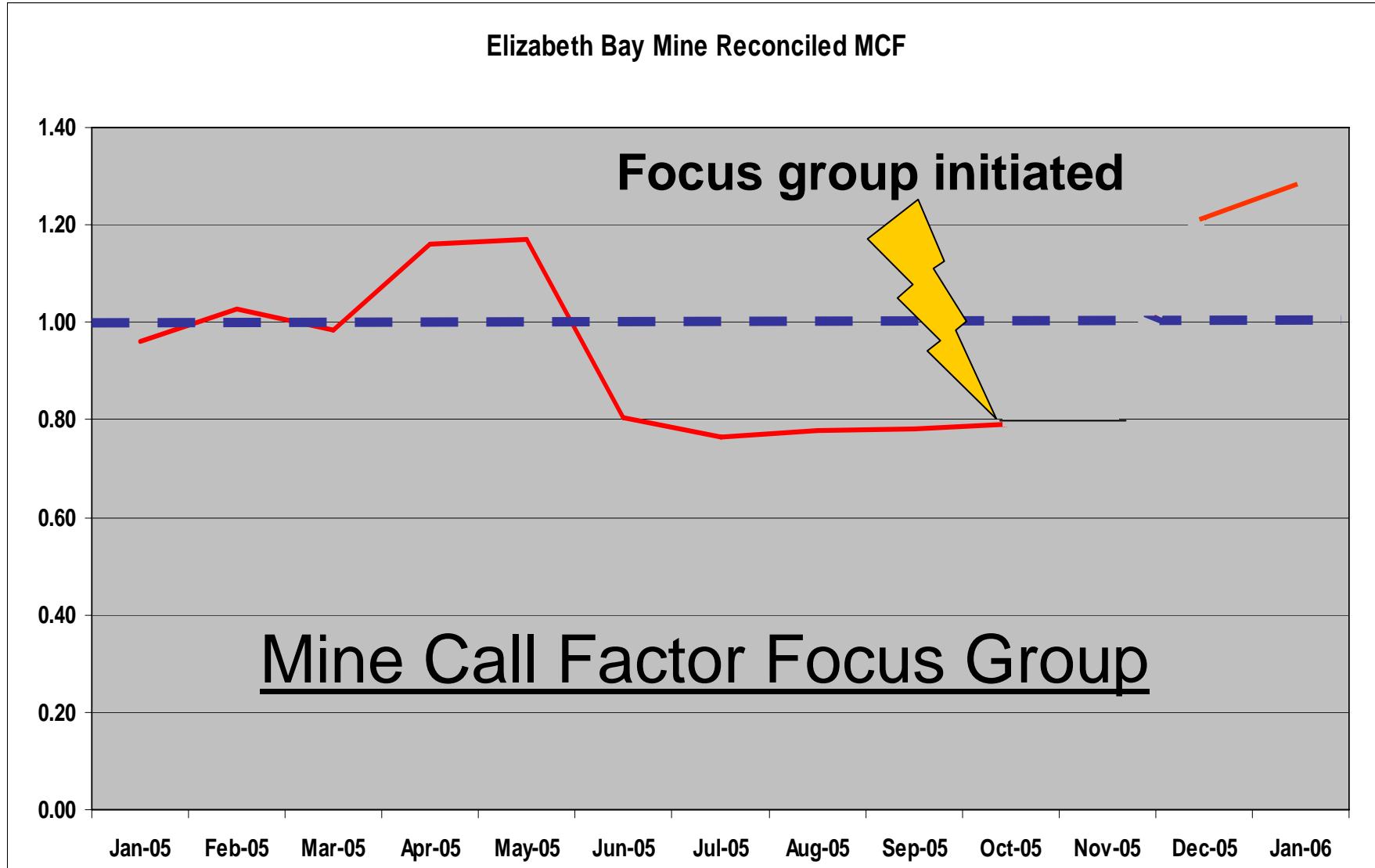
- Configure Process for Maximum Recovery
- Optimise Plant Flow Sheet
- Minimise Working Cost
- Maintain a Skilled & Motivated Team



# Continuous Improvement - 3

On Diamonds We Build

Elizabeth Bay Mine Reconciled MCF



# Agenda

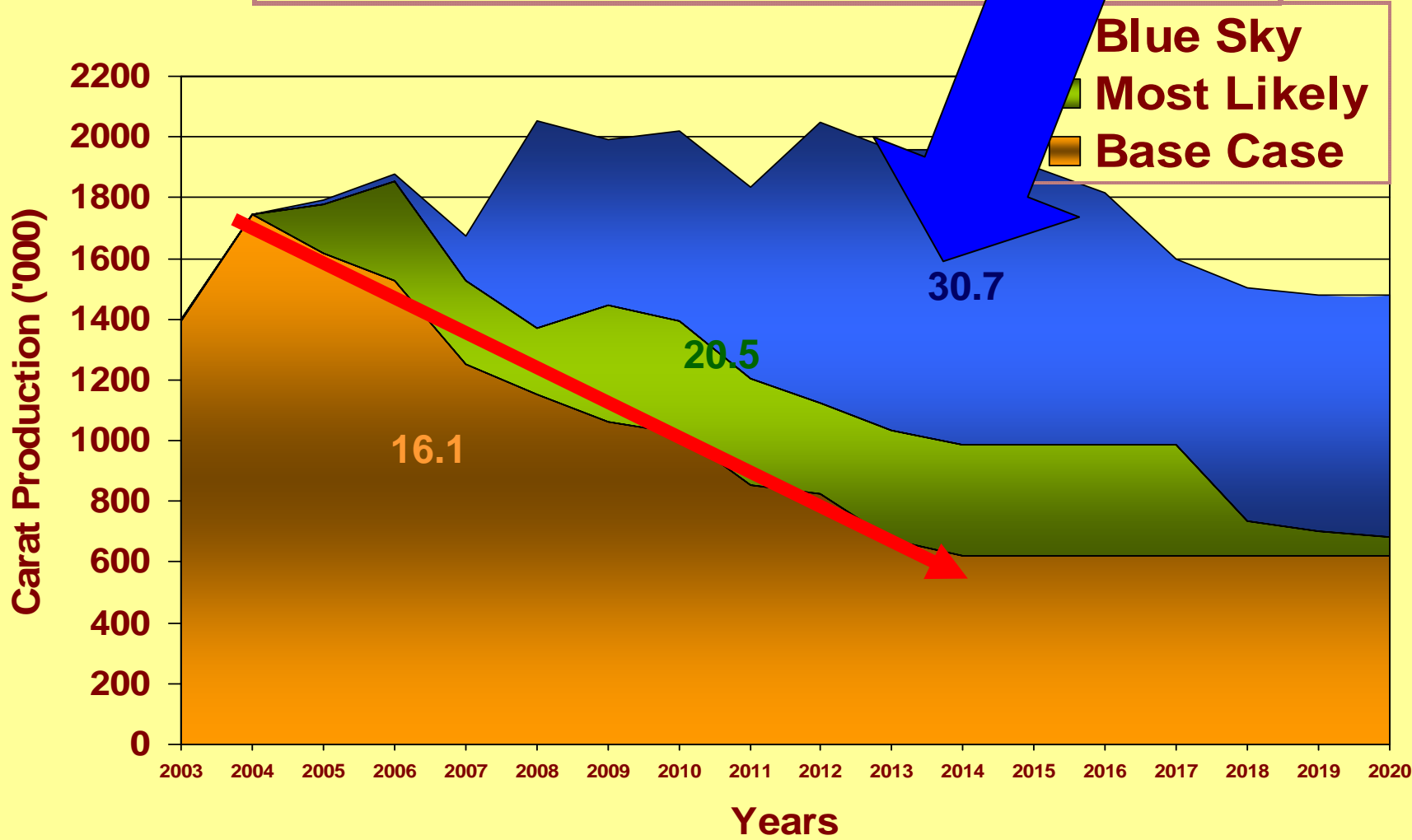
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# Declining Land Resource

## June 2004 SBP Carat Profile

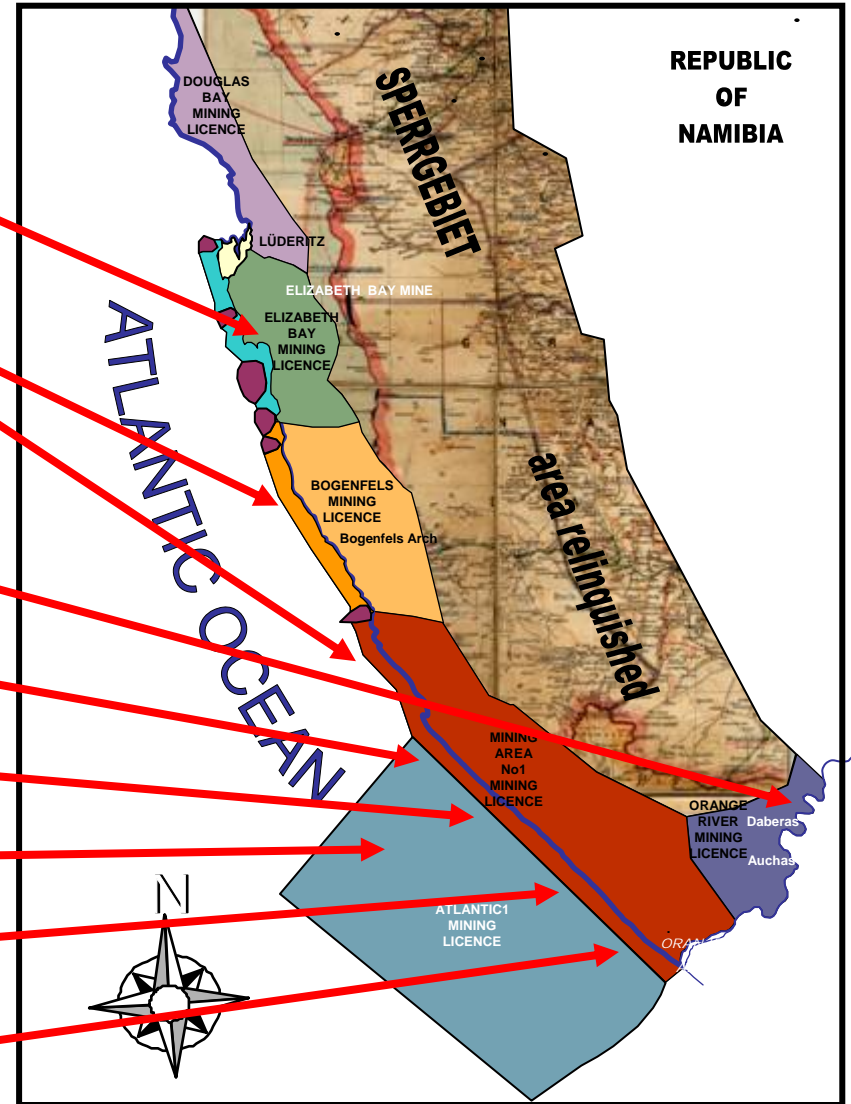


On Diamonds We Build

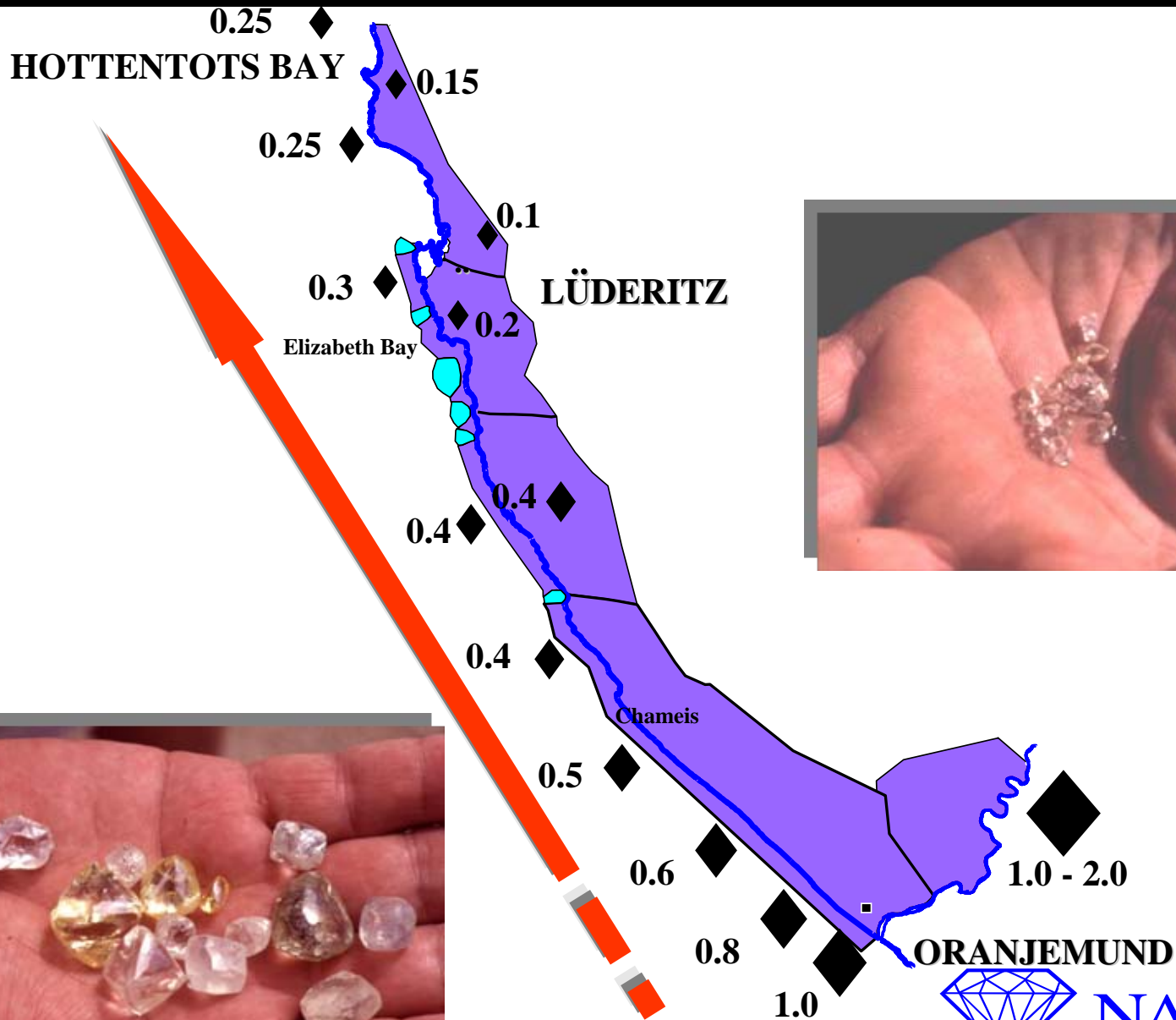
# Where are our Projects?

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- Elizabeth Bay
- Pocket Beaches
- Sendelingsdrift
- Inshore Projects
- Dump Retreatment
- Marine Dredging
- Recovery Projects
- Wet Overburden Mining South

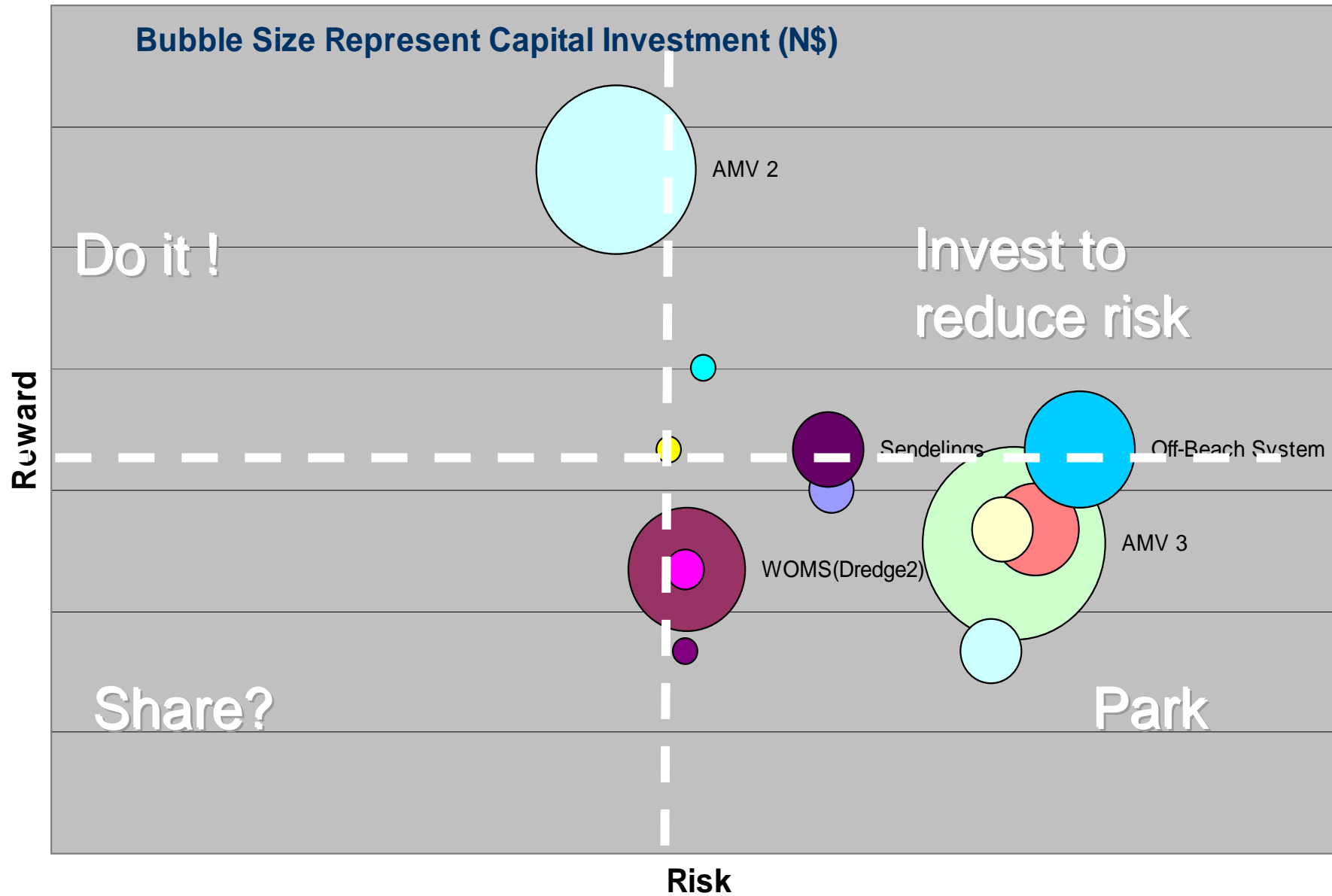


# Average Stone Size varies



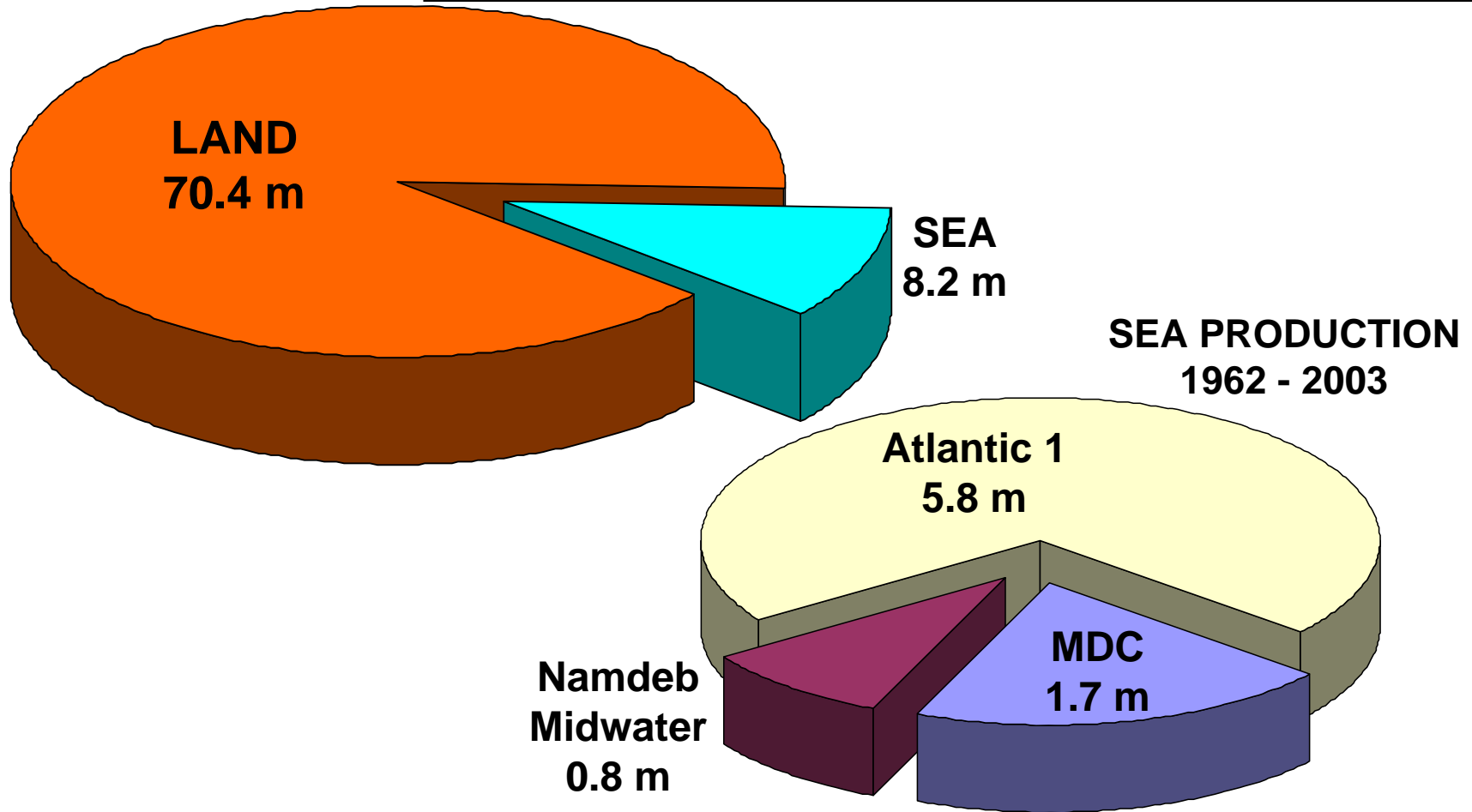
# Where do we focus?

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# Historical Recoveries from Land and Sea

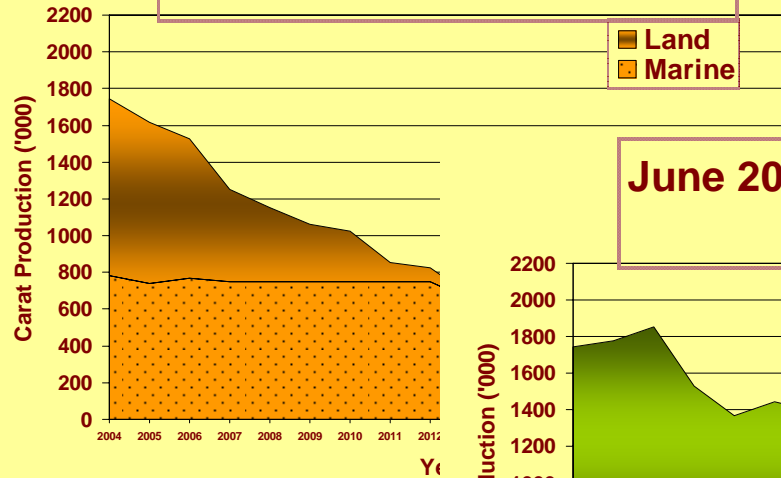
## TOTAL CARATS MINED SPERRGEBIET & COAST 1908 - 2003



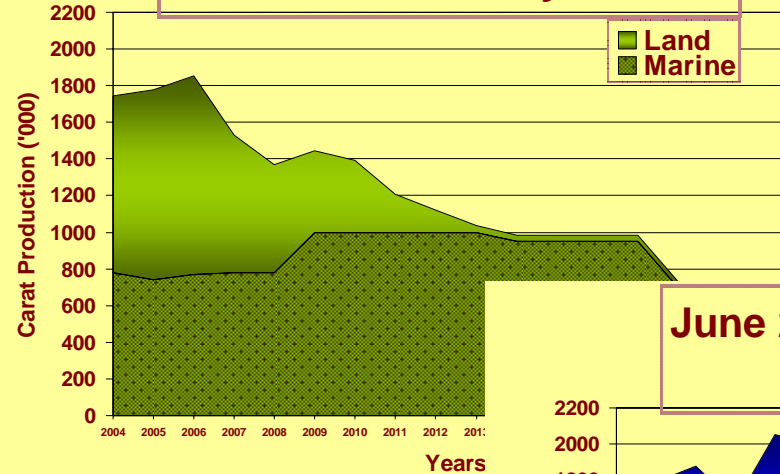
# Focus moving from Land to the Sea

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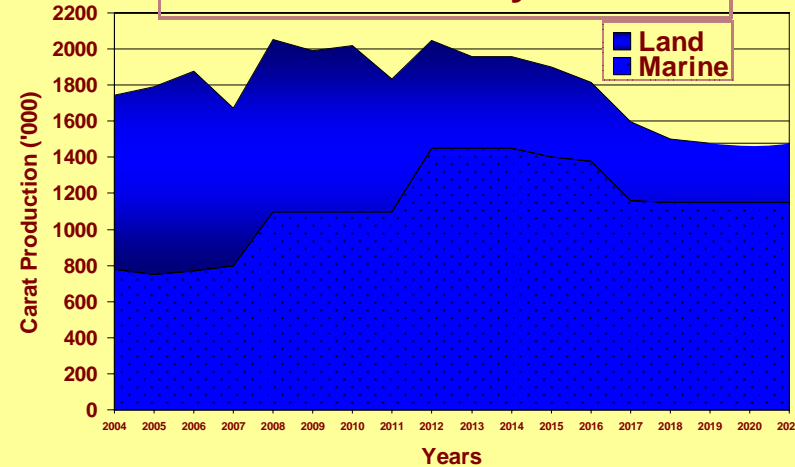
### June 2004 SBP Carat Profile Base Case



### June 2004 SBP Carat Profile Most Likely



### June 2004 SBP Carat Profile Blue Sky



# Agenda

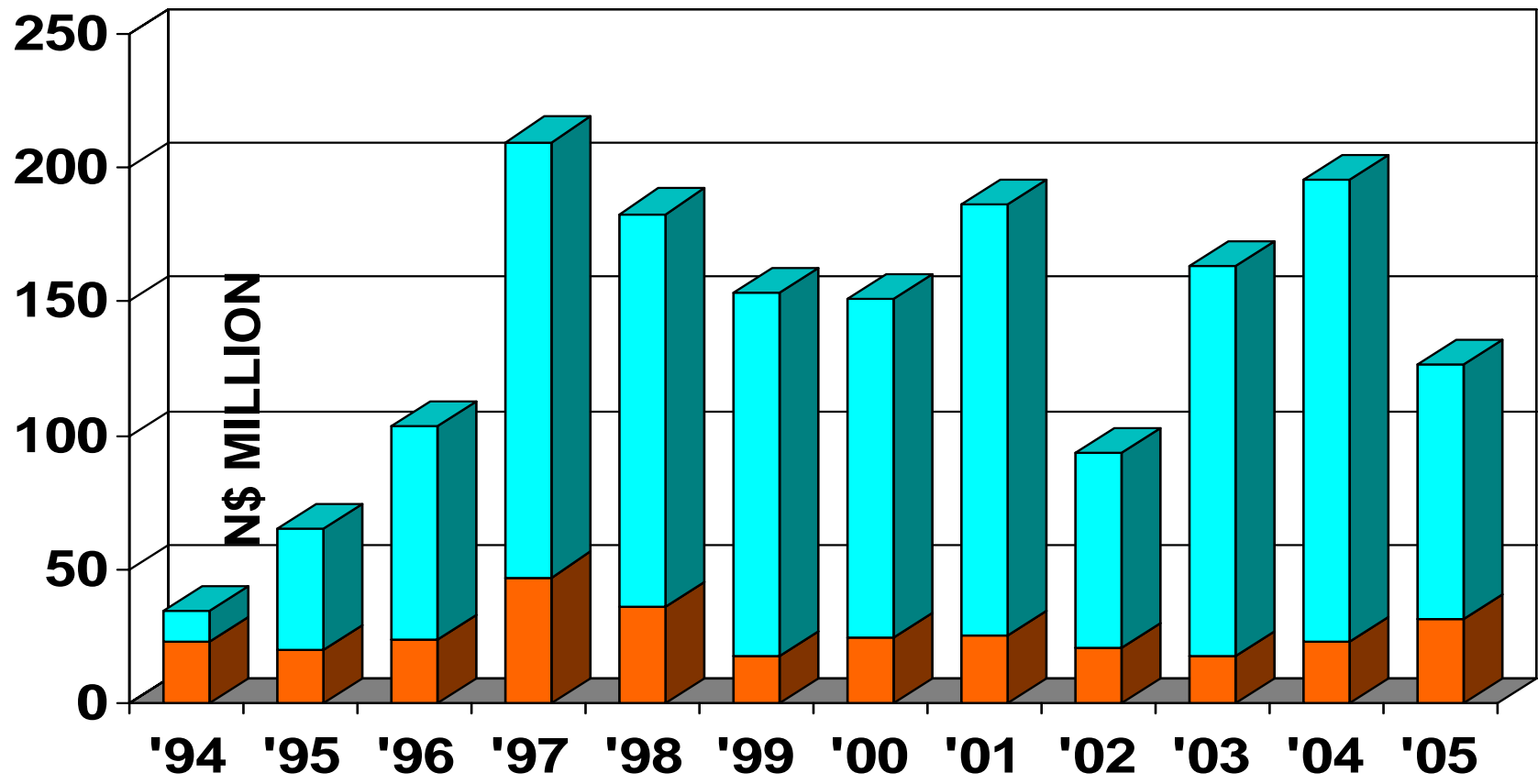
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# Sampling & Prospecting

EXPENDITURE – 1994 TO 2005  
Today's Money

LAND SEA

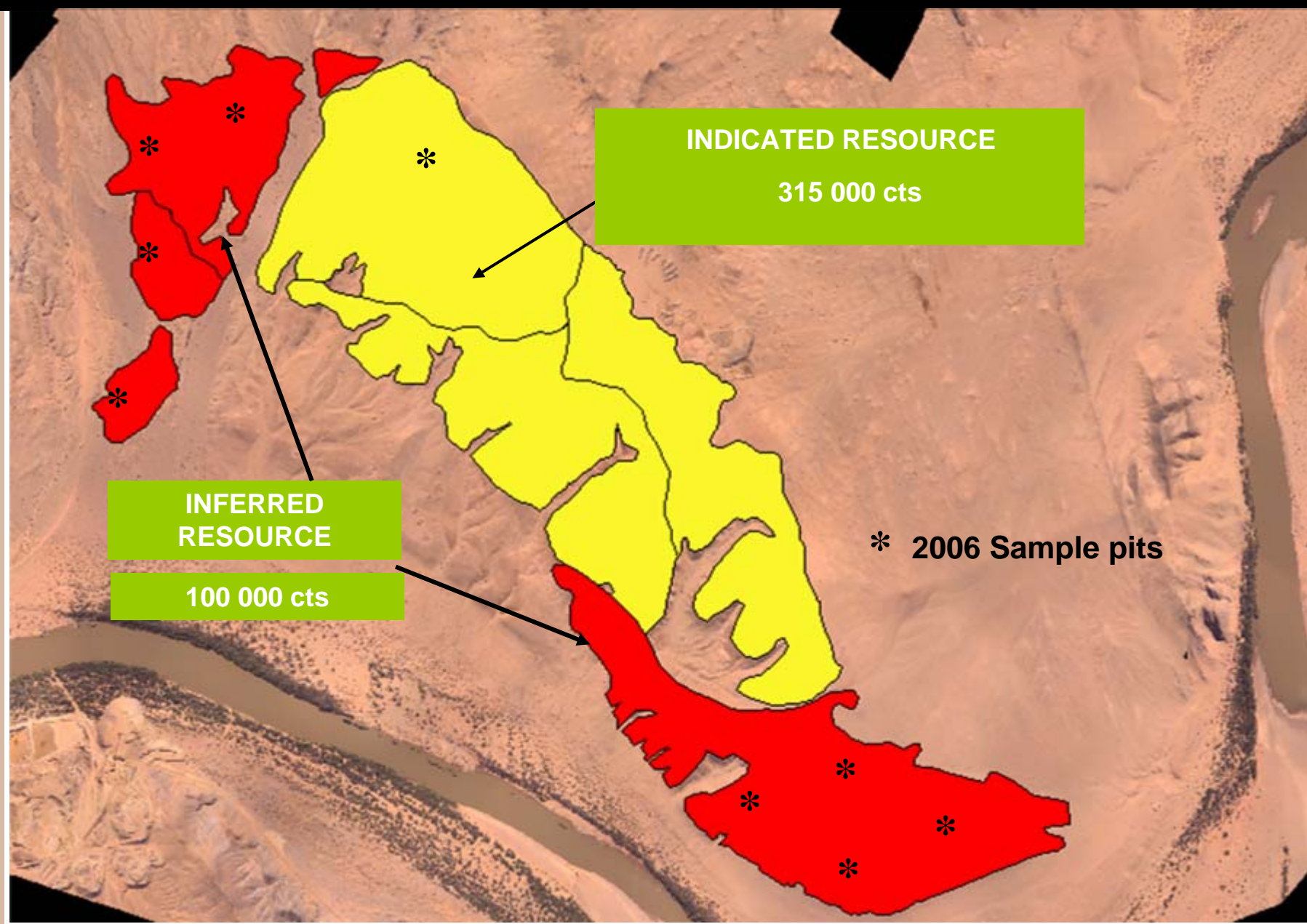


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# Sendelingsdrif Bulk Sample (2007)

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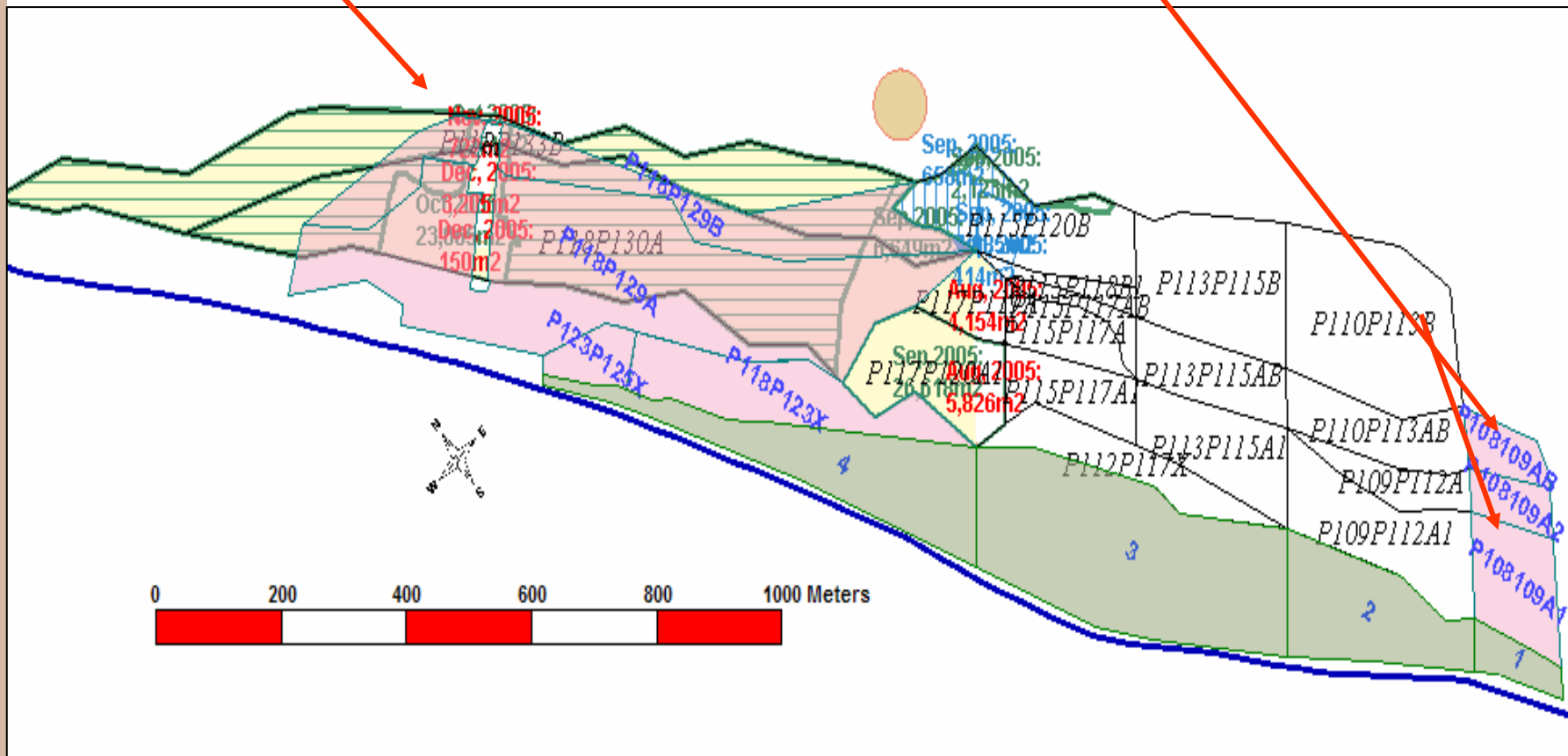


# Pocket Beach Site 2 Extension

**Mega trench complete**

- Theft during treatment
- Cementation in west

**Drilling confirms gravels extension to south and west**



**Resource extension confirmed north and south**

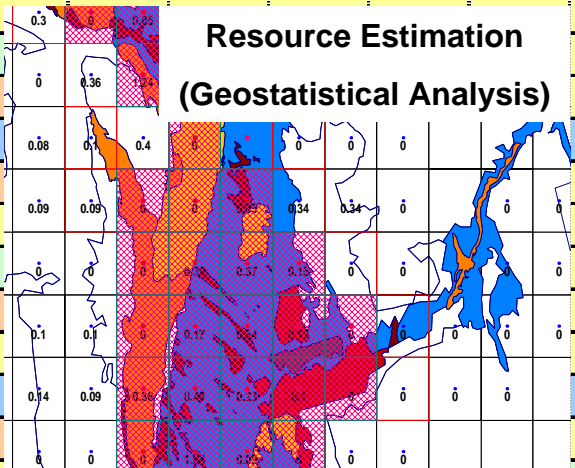


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# Sampling linked to SBP - 2

## JUNE 2005 SBP PRODUCTION PROFILE

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2 Plant Dump																
3 Plant																
3 Plant Dump																
4 Plant																
4 Plant Dump																
PTF																
PTF Dump																
Dredge																
RTR																
Pocket Beaches																
Marine Dredge																
Daberas																
Sendelings																
EBay																
Fluvial Footwall																
1 Plant Dump																
OMS South																
OMS North																
Auchas																
Obib																
Auchas Lower																
Arrisdrijf																
Bogenfels Land																
Inter Tidal																
Ultra Shallow																



**BOGENFELS**

A green arrow pointing from the 'Bogenfels Land' row towards the 'Base Case' column.

**ITC**

A cyan arrow pointing from the 'Inter Tidal' row towards the 'Base Case' column.

**ULTRA SHALLOW**

A green arrow pointing from the 'Ultra Shallow' row towards the 'Base Case' column.

Base Case

Most Likely

Blue Sky

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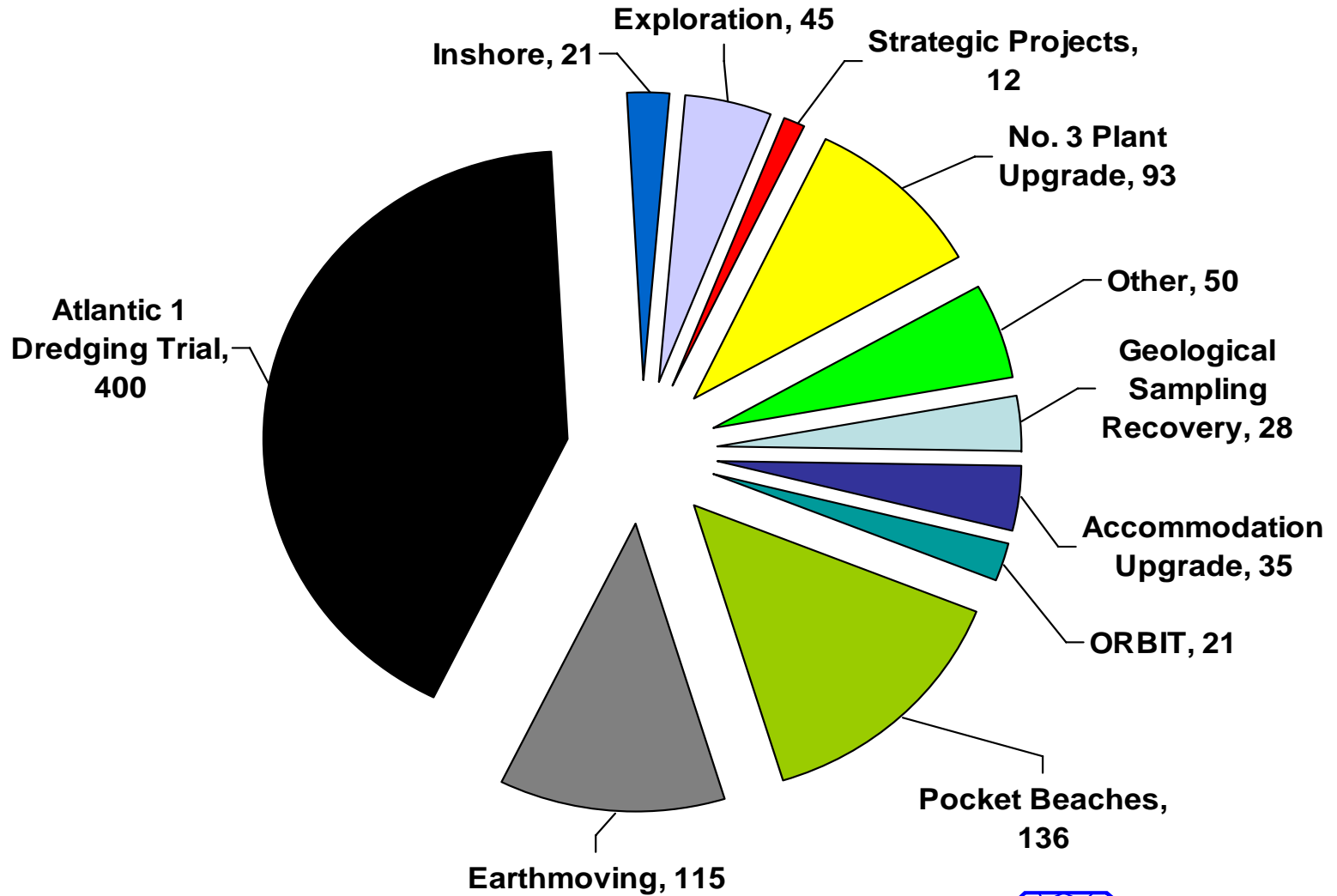
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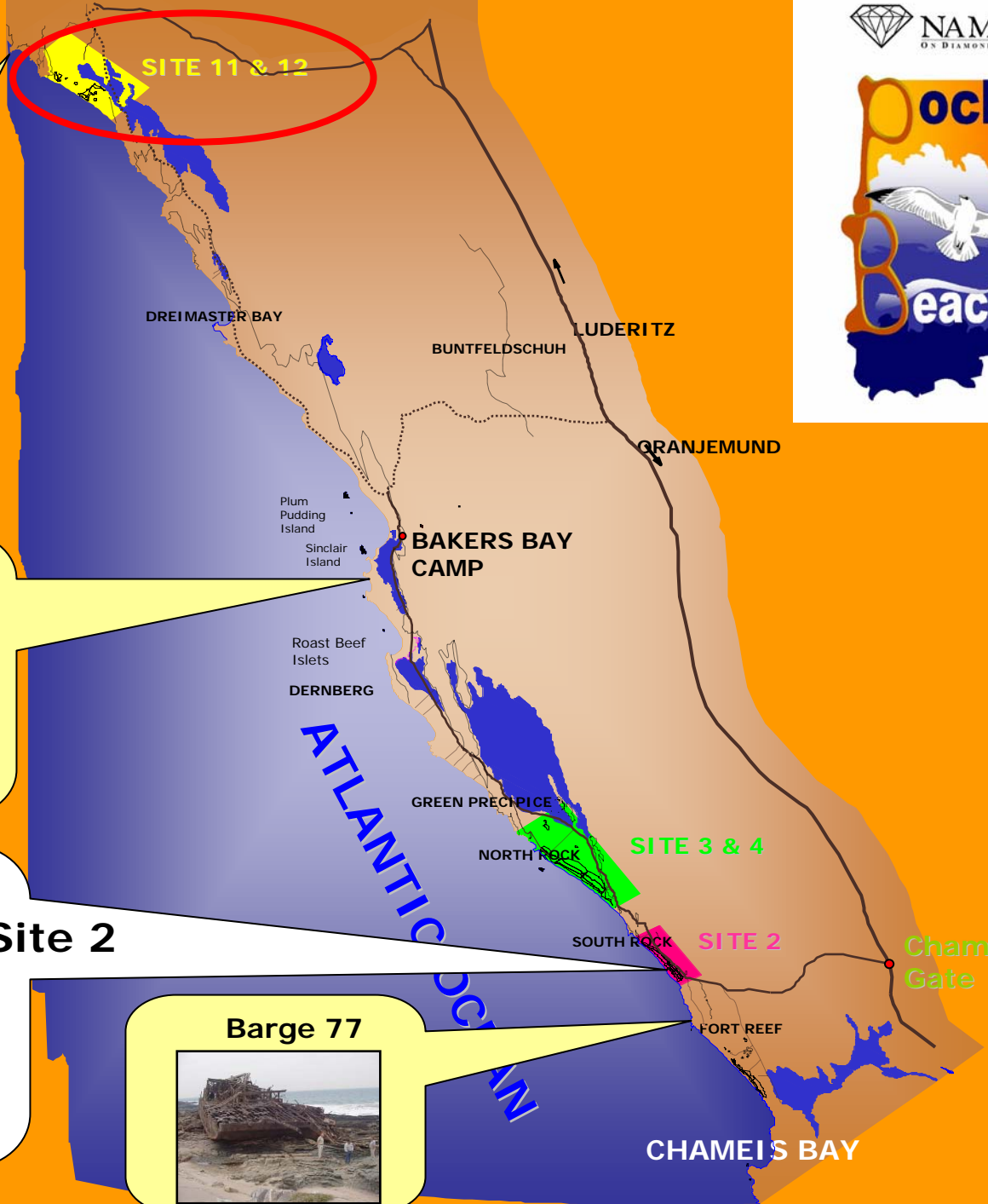
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# Strategic Projects

## CAPITAL PROGRAM FOR 2006 IS N\$956m

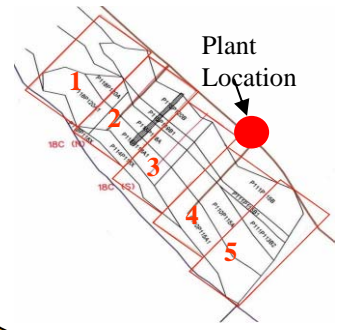




Bogenfels Arch



Seal Colony



Site 2

Barge 77

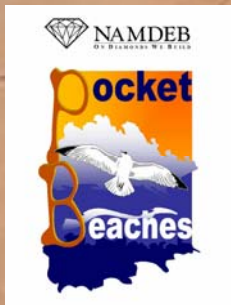


CHAMEIS BAY

# Pocket Beaches Site 2 – new concept



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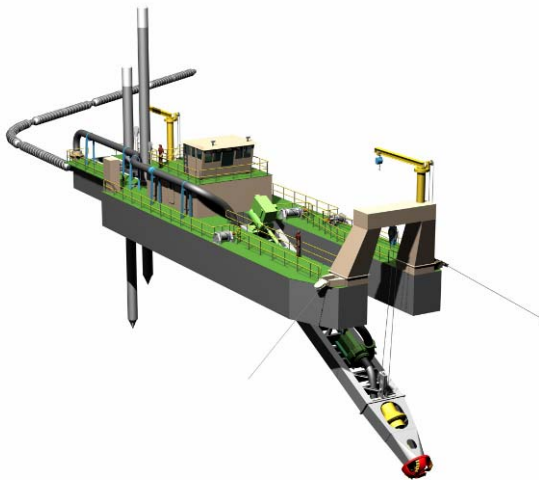
# Site 11 & 12 - Project Concept

Stripping : 21.5 million tons  
Gravel : 1.1 million tons  
Carats : 365 000

## Cut-off Wall



## Dredge Overburden Removal



## Gravel Mining



# PBA Phase 2 – Major Risks

- Cut-off Wall Integrity ✓
- Security when mining & treating high grade material ✓
- Dredge water supply ✓
- Duration of pond dewatering ✓
- Environmental & Stakeholder Issues ✓
- Project timing ✓

- 3<sup>rd</sup> Party Audits
- Testwork
- Prototype Equipment (SWI Trials)
- Specialist Studies
- Contingency Plans
- Stakeholder Involvement

Assurance Plan



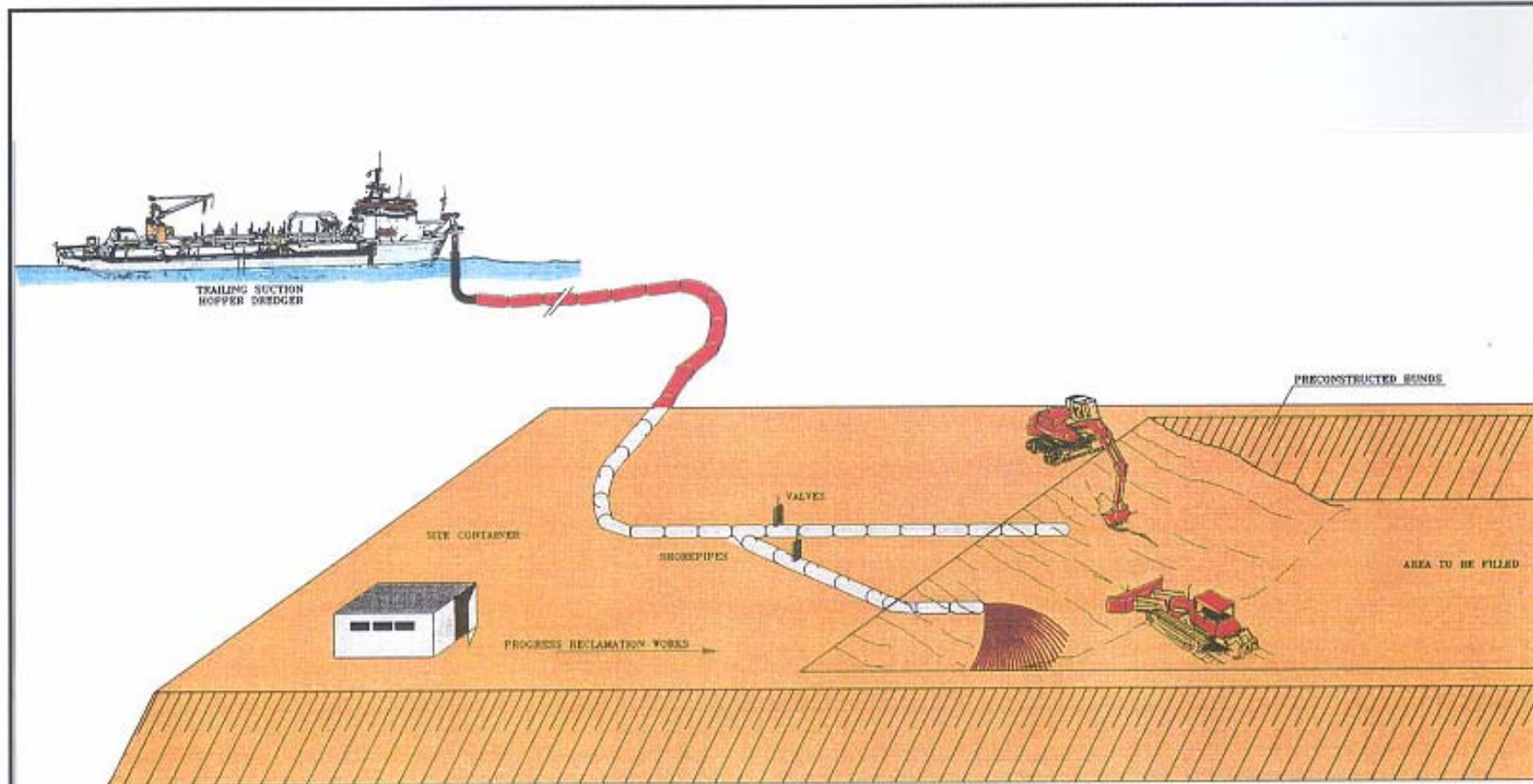
# Marine Dredging Project

## OBJECTIVES

- Evaluate the potential to economically extract lower grade marine resources with TSHD technology. ( $\leq 0.1$  ct/m<sup>2</sup>)
- High mining rates (Target  $> 900$ m<sup>2</sup>/hr)
- Carat Production from January 2007
- Lower capital / high working cost operation
- Expansion potential in low grade deposit



# The concept



**TRAILING SUCTION HOPPER DREDGER  
PUMPING ASHORE TO THE RECLAMATION AREA**



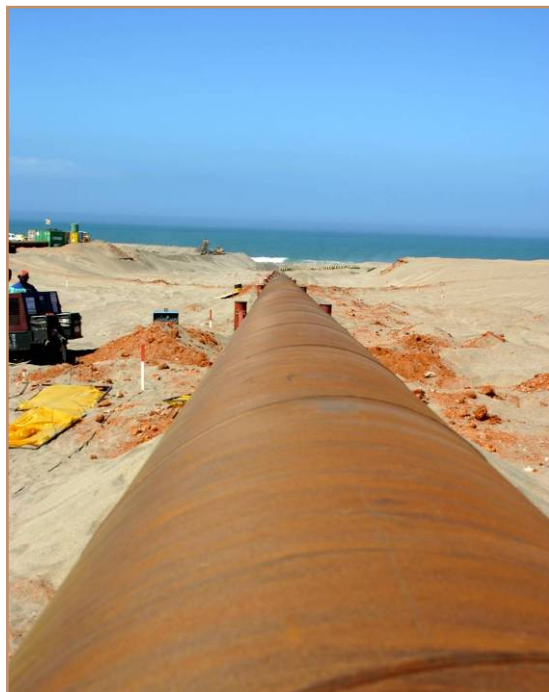
# How?

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# The Pipeline

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Pumping!!!

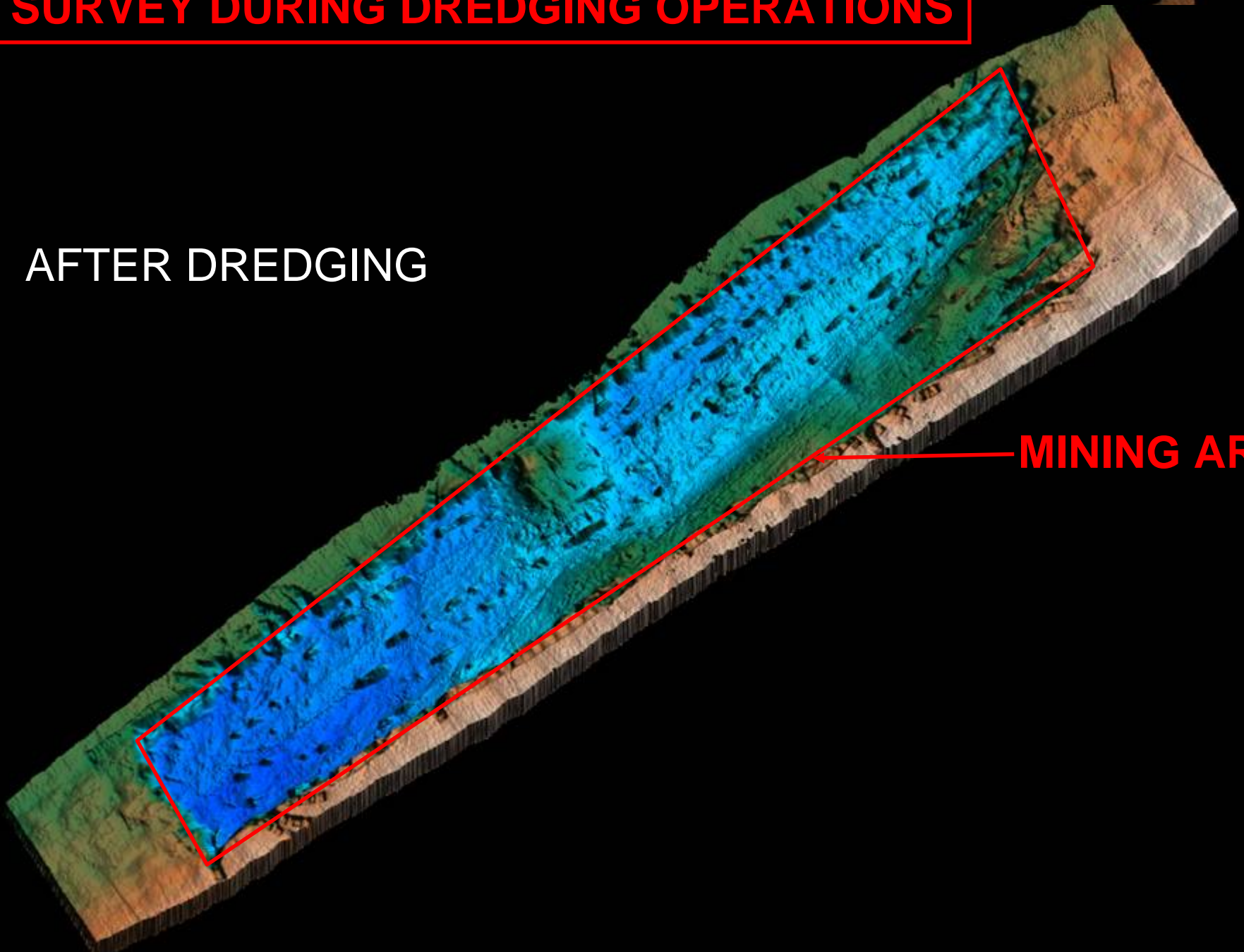


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# SURVEY DURING DREDGING OPERATIONS

AFTER DREDGING

MINING AREA



# Environmental (8%)

## All marine life:

- Baseline surveys done
- Monitoring will continue for 14 months

## Overflow monitoring

- Overflow appears very clean
- Monitor samples taken

Sea overflow



Land overflow



2005 1 28

# Atlantic 1 Trial

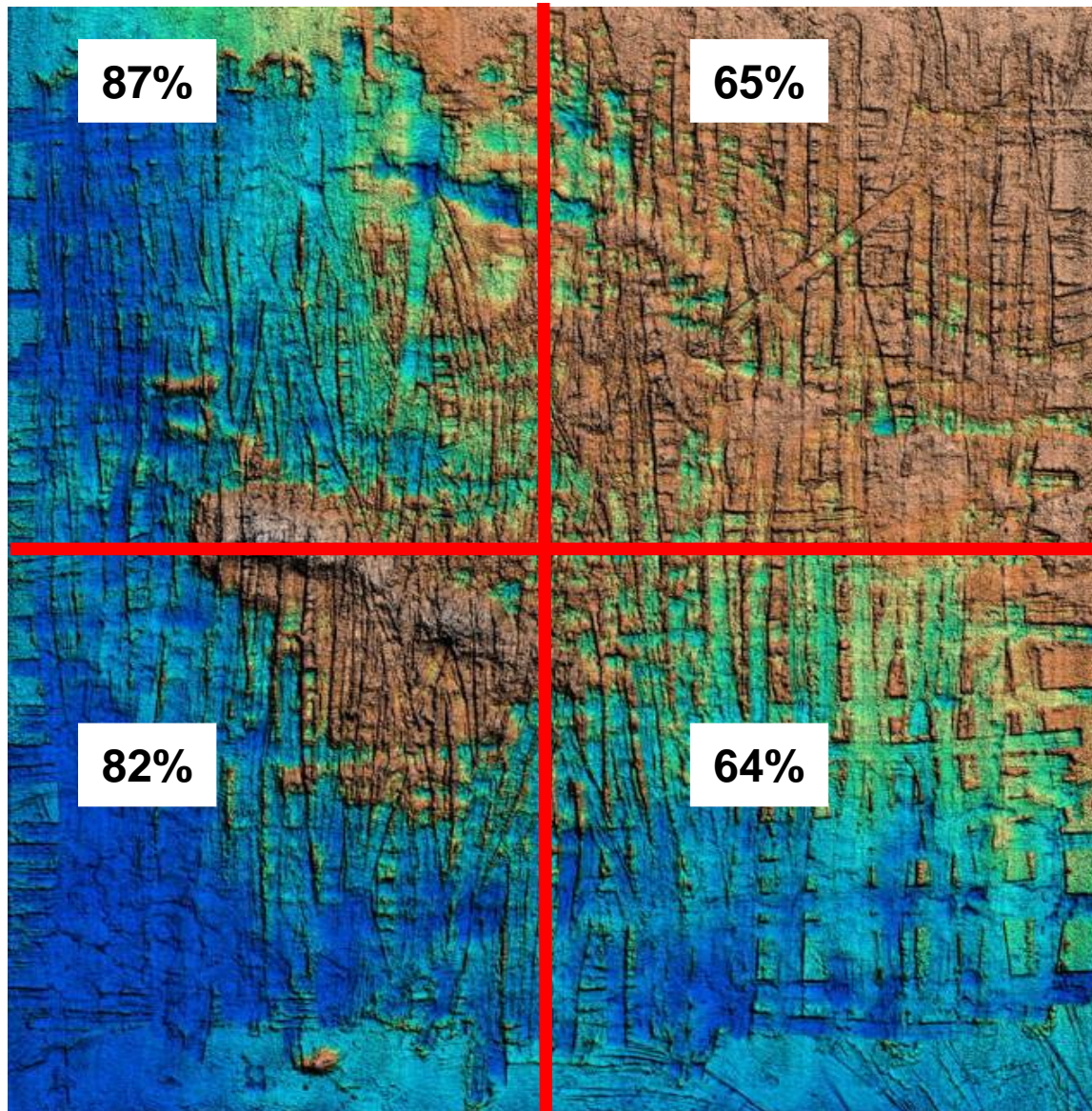
## RESULTS

- Mining Rate
  - 7 weeks of dredging completed
  - 1 086 000 m<sup>2</sup> mined
  - Average 920 m<sup>2</sup> / hr
- Depletion
  - Initial test panel depletion low ( < 60%)
  - Draghead changes made
  - Additional mining and sampling
  - Significant improvement ( 75%)



# Atlantic 1 Trial

## P1D06 depletion 75%



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# Elizabeth Bay Project: N\$ 450 million

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New Primary Liberation Area with water-flush primary crusher

New Secondary Liberation Building, with secondary crushers, tertiary crushers and mills.

New Sea Water Intake system, new CCR, new fine tailings disposal system, new workshop, new Recovery and other infrastructure



# A World Class Plant with a long future



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# Key Statistics of a fast track project

- Project feasibility launched: October 2001
- Project approval: March 2003
- Construction began: September 2003
- Construction completed: November 2004
- Ramp-up slower than expected – Series 3
- **Construction Contractors were 84% Namibian overall**



# Inshore Project - Area of interest

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R & D  
Project

We have come a long way!

Attempts in the 1980's



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# The Jet Rig

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# The Jet Rig - 2

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# The Seawalker

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# Gully Mining Machine Prototype

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# We are changing our paradigms . . .

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*Thank you !*