

# **ASPHALT RECYCLING IN THE NETHERLANDS**

## **The road to success**

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# **Favourable circumstances**

- **technique**
- **economy**
- **policy**

# **Circumstances in the Netherlands**

## **Technique**

- available technique**
- support by the client**
- Dutch standard specifications**

# **Environmental Circumstances**

- global environmental awareness**
- scarcity of quarry material**
- alternative construction materials**

# **Economic Circumstances**

- **oil crisis**
- **high bitumen prices**
- **return on investment**

# Summarising

- **accepted technology**
- **co-operation client - industry**
- **environmental policy**
- **scarcity of natural aggregates**
- **waste reduction**
- **oil crises**

## Today's incentives

- **dumping not allowed**
- **max 50% reclaimed asphalt in specs**
- **min % in tender specs**
- **mixing plants equipped**

**ENVIRON-MENTALITY**

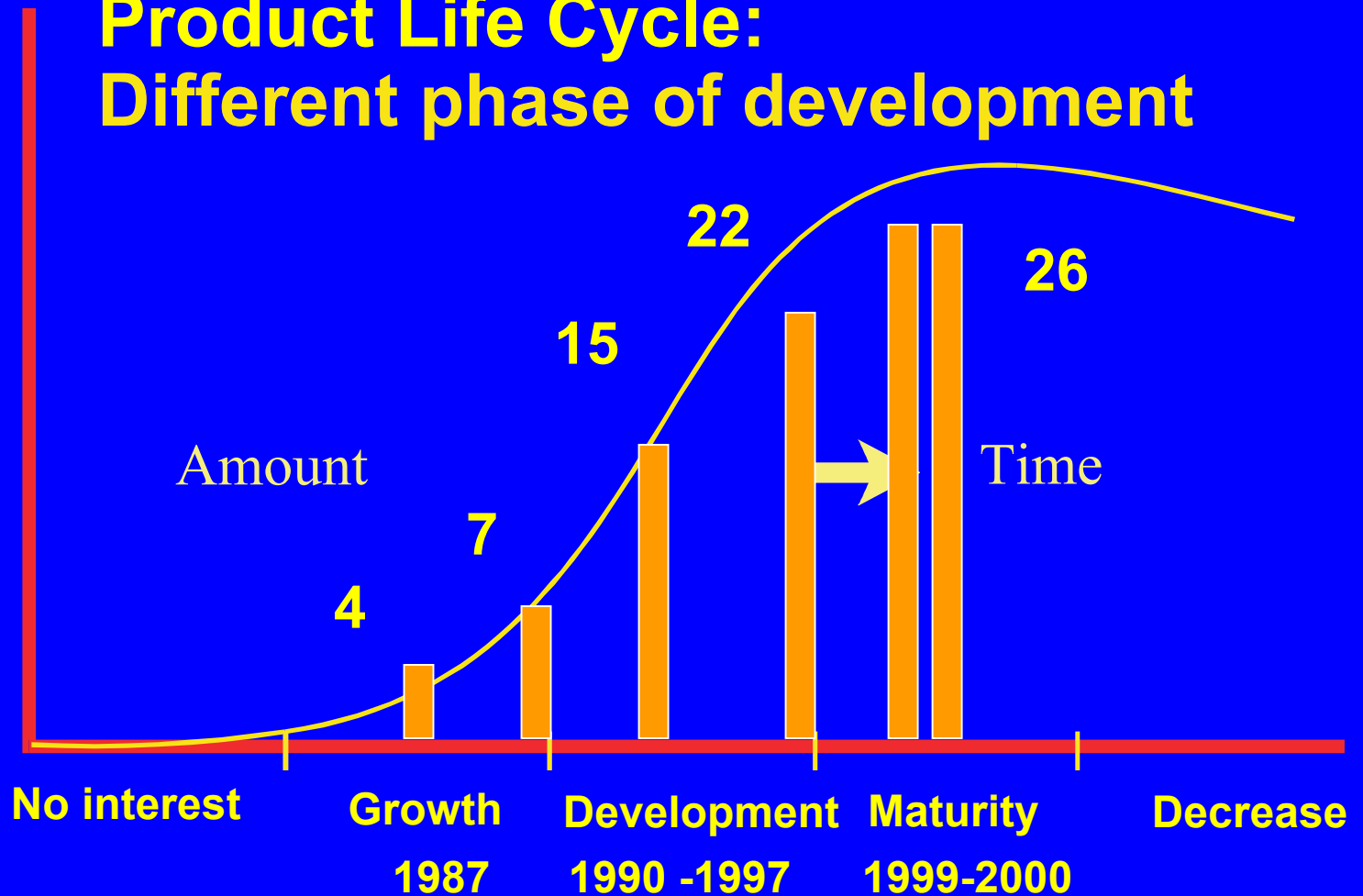


## **Facts and figures**

- **production 7 - 8 million tns/yr**
- **50 asphalt mixing plants equipped for recycling**
- **reclaimed asphalt 3.5 million tns/yr**

	<b>RA</b>	<b>prod</b>	<b>%RA</b>
	<b>[ million tonnes]</b>		
<b>1987</b>	<b>0.3</b>	<b>7.4</b>	<b>4</b>
<b>1990</b>	<b>0.5</b>	<b>7.5</b>	<b>7</b>
<b>1993</b>	<b>1.0</b>	<b>6.5</b>	<b>15</b>
<b>1997</b>	<b>1.8</b>	<b>8.1</b>	<b>22</b>
<b>1999</b>	<b>2.2</b>	<b>8.4</b>	<b>26</b>
<b>2000</b>	<b>2.0</b>	<b>7.6</b>	<b>26</b>

# Product Life Cycle: Different phase of development



# Setting targets [million tonnes]

<b>total reclaimed asphalt</b>	<b>=</b>	<b>3.5</b>	
<b>tar containing</b>	<b>=</b>	<b>0.5</b>	
		<hr/>	<hr/>
		<b>3.0</b>	
<b>hot mix recycling</b>		<b>2.0</b>	
		<hr/>	<hr/>
<b>target</b>		<b>1.0</b>	

# Availability

- right place
- right time
- right quantity
- right quality

# Requirements for RA

- reclaimed bitumen quality
- aggregate size
- aggregate shape
- no pollution
- no tar
- homogeneity

**Requirements**

**for**

**hot mix with reclaimed asphalt**

**=**

**hot mix with 100% new materials**

**Possible solution**

~~**Recipe approach**~~



**Performance based requirements**



**Quality!**

**Pavement demolition**

**=**

**Preparing valuable material**

# Conclusions

## Success-factors

- acceptance of technique
- environ-mentality
- co-operation
- return on investment
- market

