

Zero Waste Around the World

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OUTLINE

- 1. The Big Picture
- 2. The global significance of ending mega-landfilling and incineration
- 3. The Zero Waste 2020 strategy outlined
- 4. Worldwide initiatives

1. The Big Picture



The McDonaldization of Society



New Century Edition

GEORGE RITZER

**We are living on this planet as if we
had another one to go to**

**We cannot run a throwaway society
on a finite planet**

**We are robbing our own children and
grandchildren**

This is colonialism in time!

Landfills **BURY the evidence**

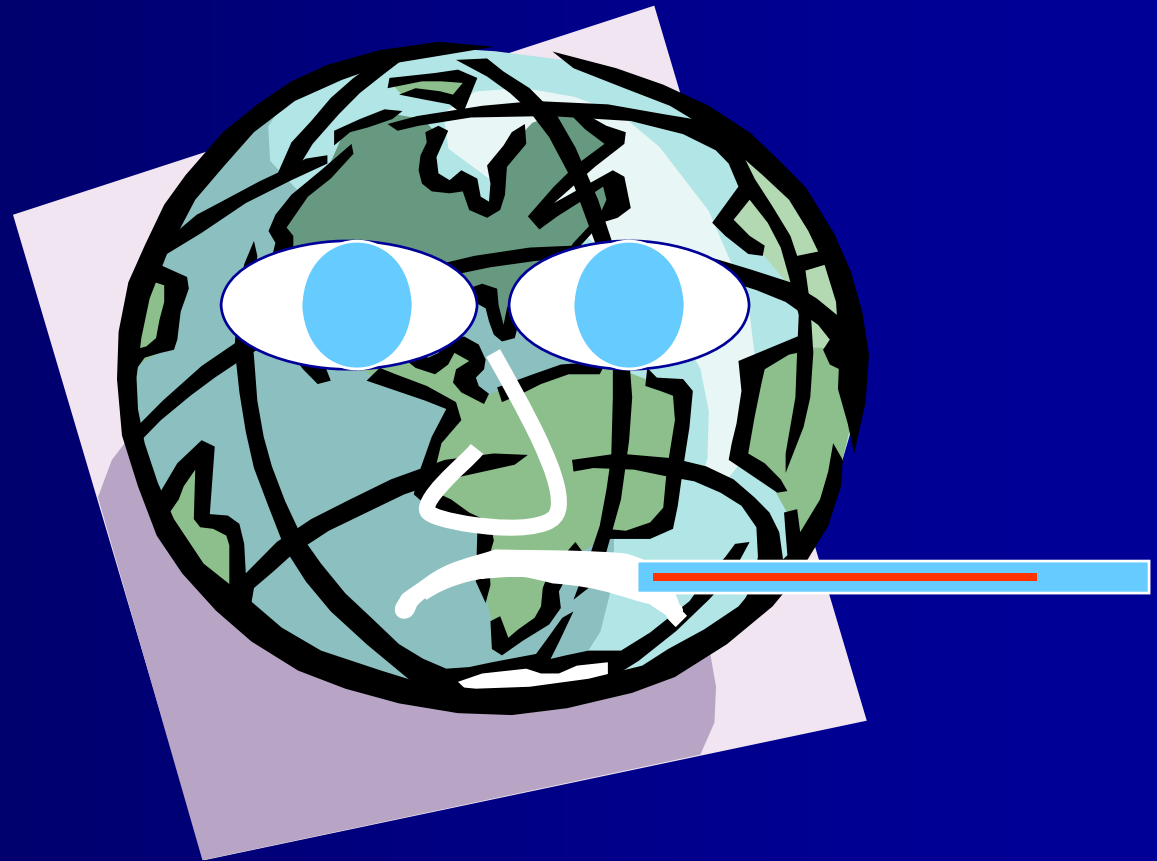
Incinerators **BURN the evidence**

We need to face the real problem...

**Our task is to fight the
throwaway ethic &
over-consumption**

**Not only is
over-consumption
giving us a local waste crisis
but also...**

... a Global crisis



2. The global significance of ending mega-landfilling and incineration

The Global Crisis:

Since the Industrial

Revolution we have

imposed a society which

functions in straight lines

on a planet that functions in

circles

A LINEAR SOCIETY

Extraction

Production

Consumption

Waste

Advertising/TV



Extraction

Production

Consumption

Waste

**Over-advertising
produces
Over-consumption**

By the time a high school student leaves school, he or she will have watched over 350,000 TV commercials.

*Paul Hawken
The Ecology of Commerce.*

ENERGY

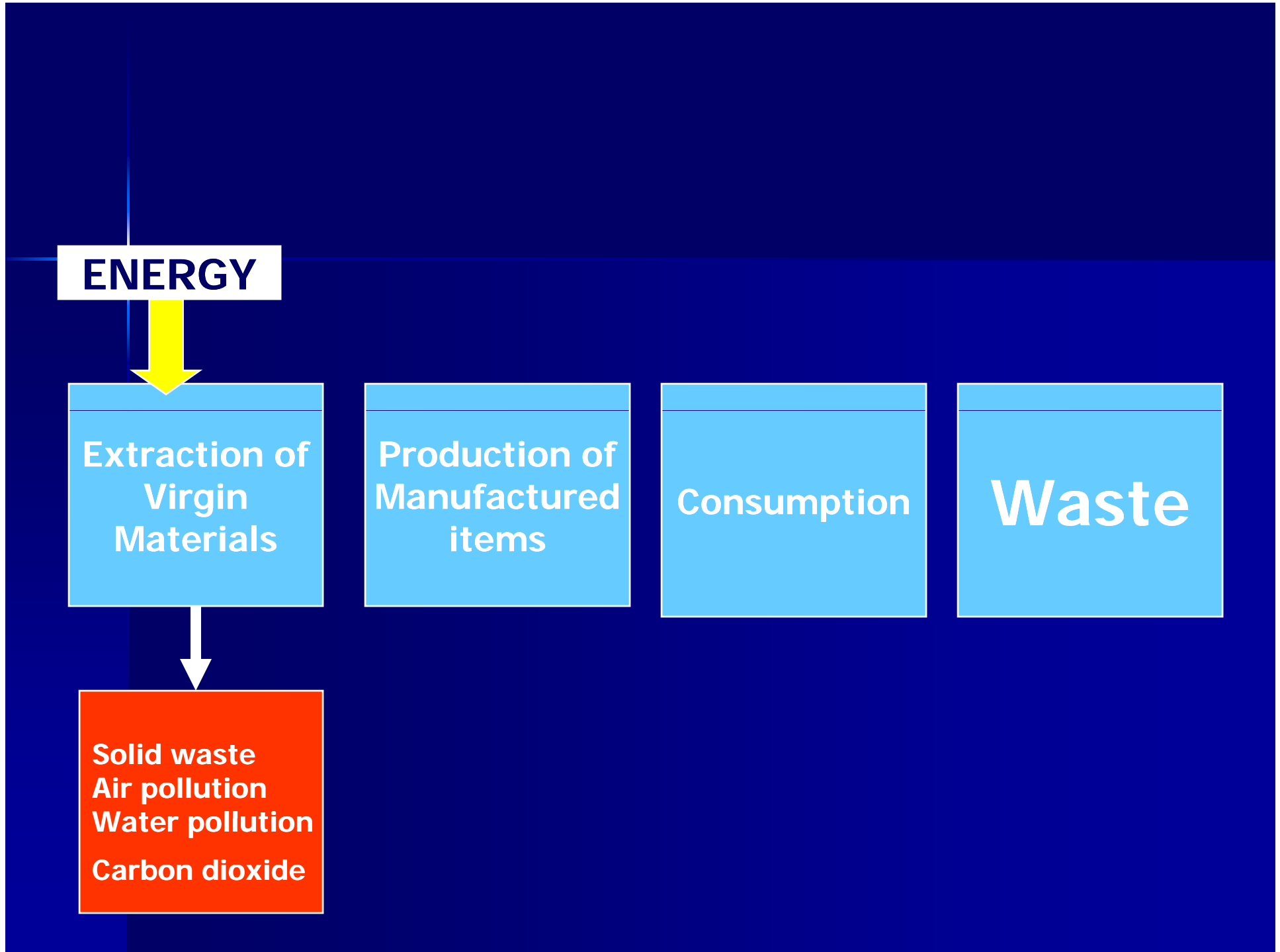
**Extraction of
Virgin
Materials**

**Production of
Manufactured
items**

Consumption

Waste

**Solid waste
Air pollution
Water pollution
Carbon dioxide**



ENERGY

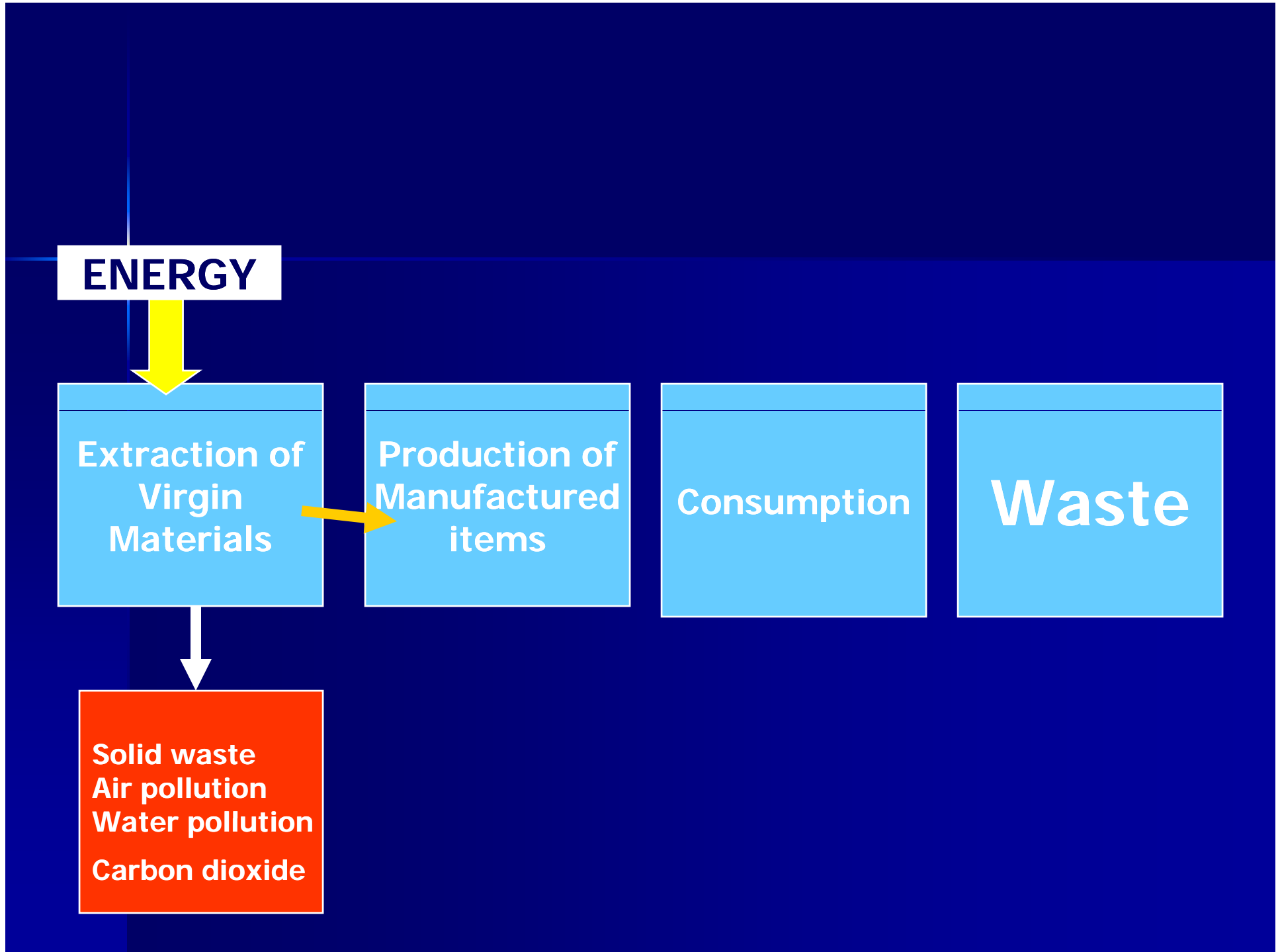
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ENERGY



**Extraction of
Virgin
Materials**



ENERGY



**Production of
Manufactured
items**

Consumption

**Discarded
Materials**



**Solid waste
Air pollution
Water pollution
Carbon dioxide**



**Solid waste
Air pollution
Water pollution
Carbon dioxide**

ENERGY



**Extraction of
Virgin
Materials**



ENERGY



**Production of
Manufactured
items**



Consumption

**Discarded
Materials**

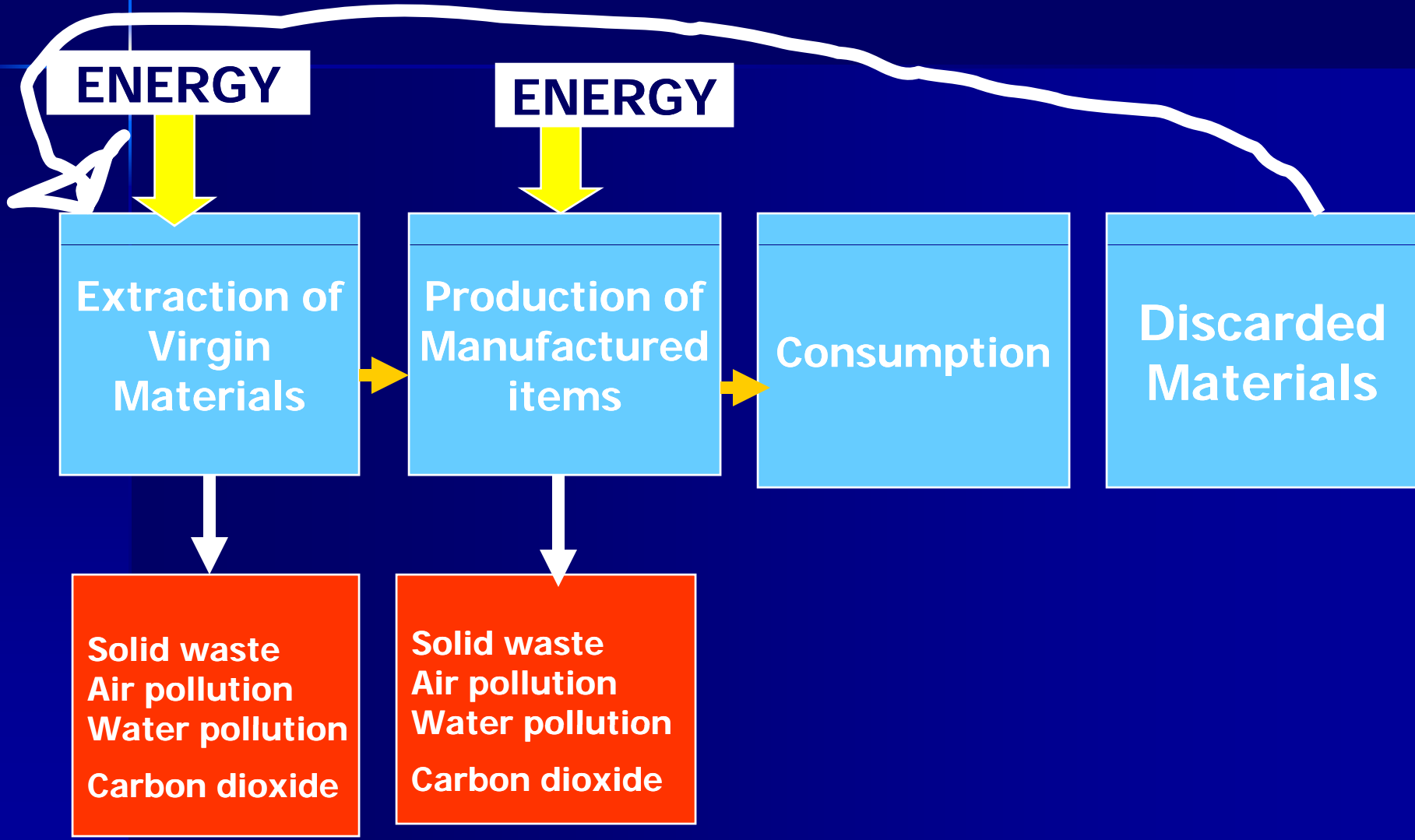


**Solid waste
Air pollution
Water pollution
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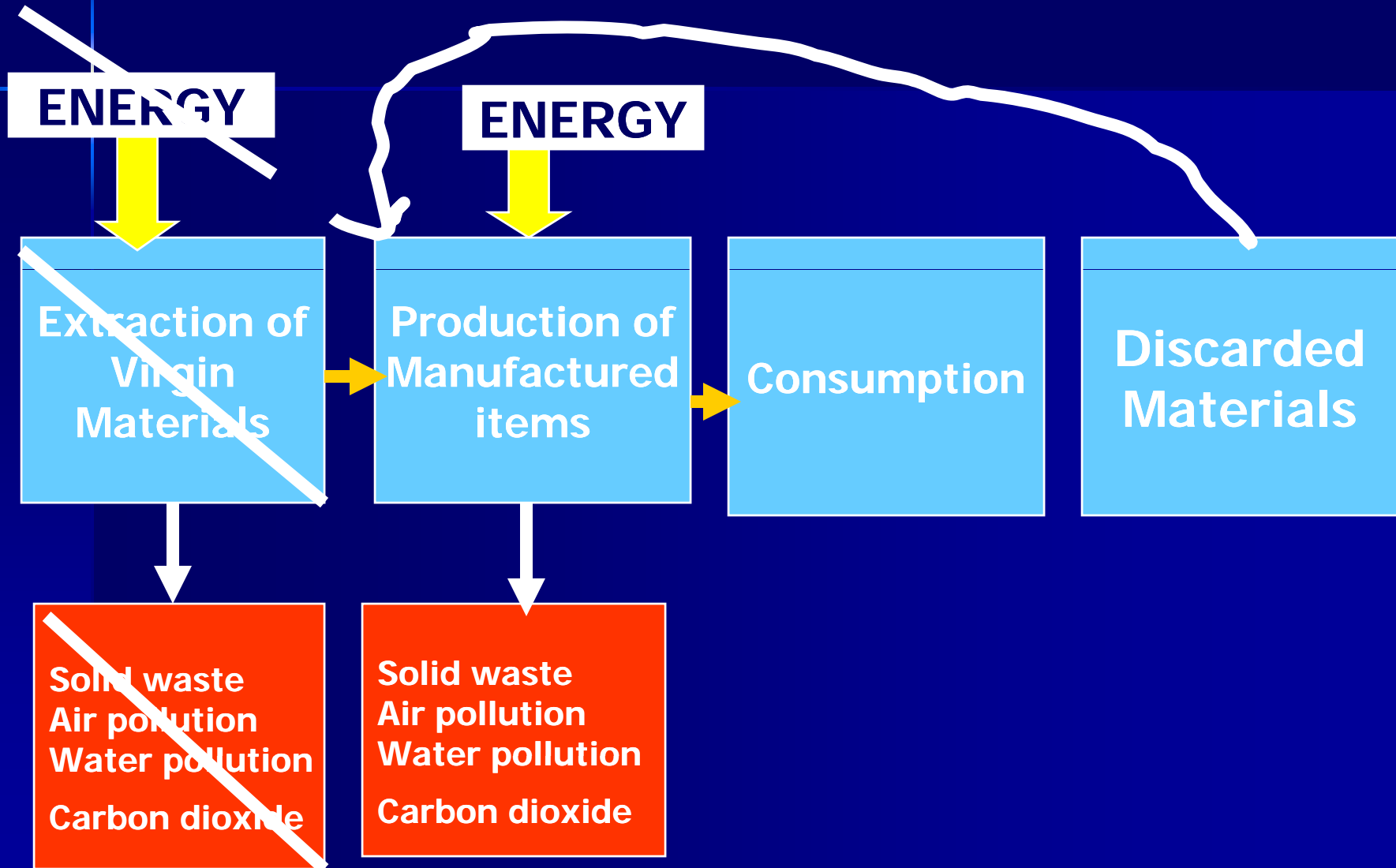


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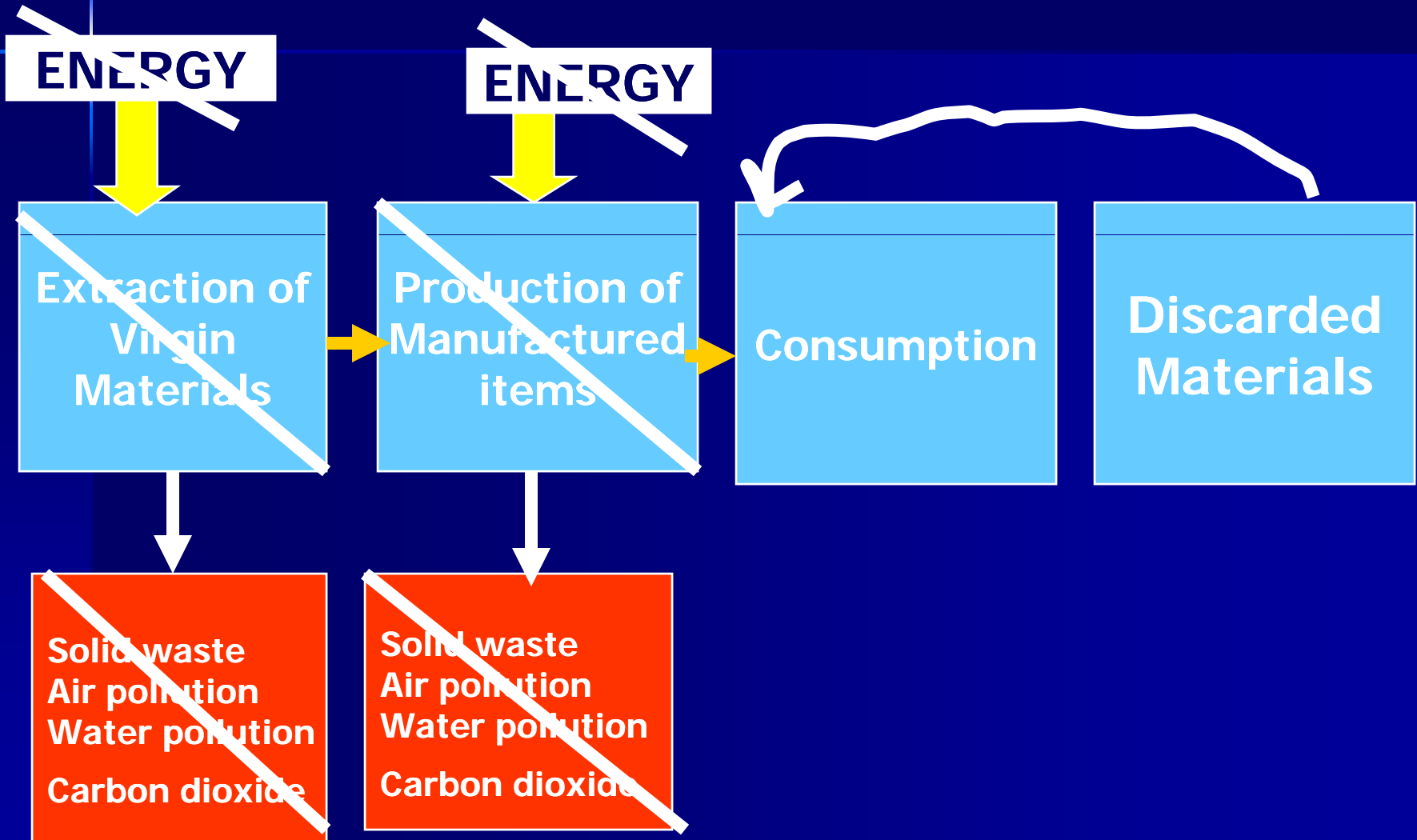
INCINERATION & LANDFILLS



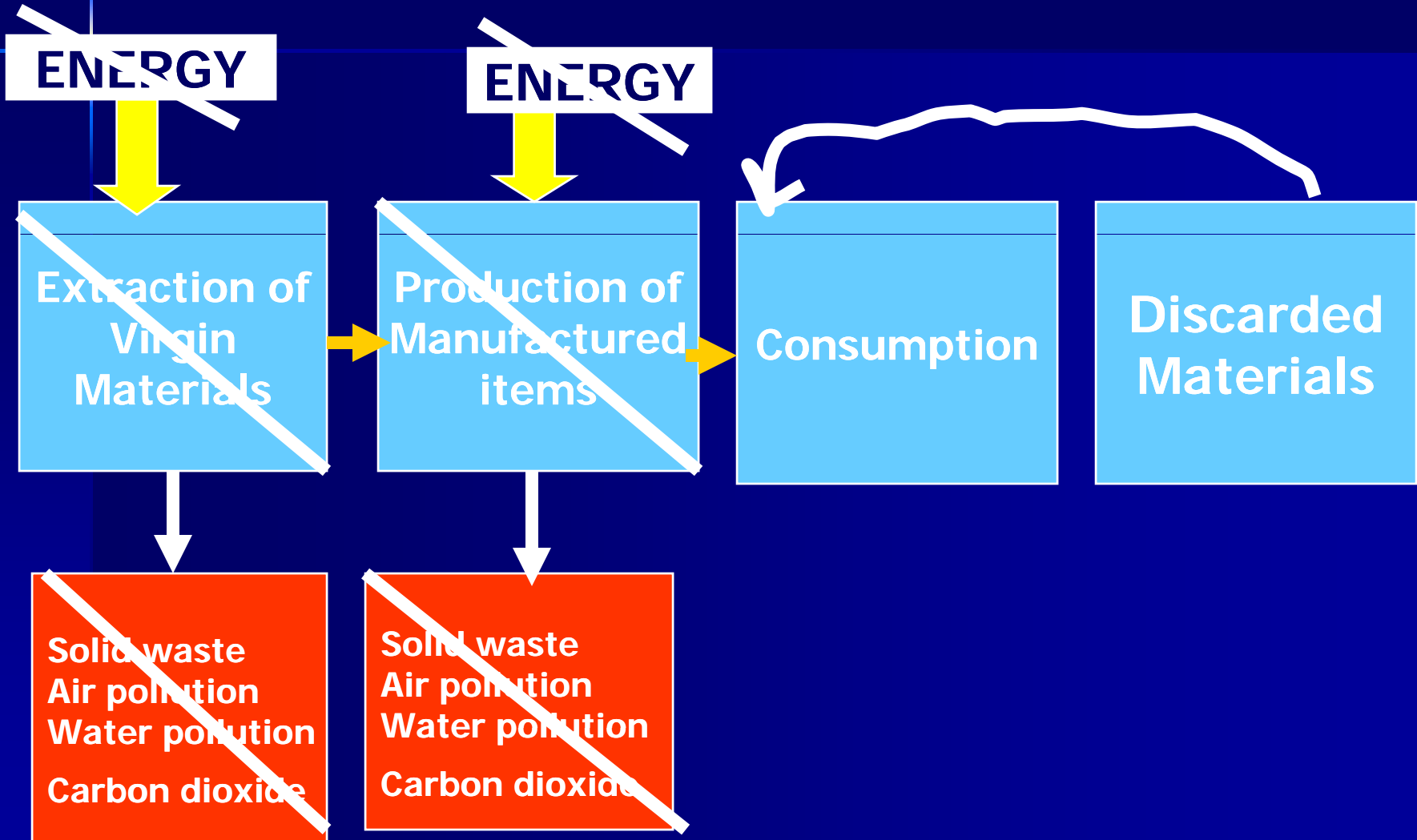
RECYCLING OF MATERIALS



REUSE OF OBJECTS



COMPOSTING



Incineration is a waste of energy!

- Despite fancy names like -
- “resource recovery facilities”; “waste to energy” plants; thermal valorization and thermal optimization; gasification; pyrolysis & plasma arc technology -
- all these techniques involve destruction of finite resources and
- waste **3-4 times more energy** than can be saved by a combination of reuse, recycling and composting
- Contact: Dr. Jeffrey Morris,
jeff.morris@zerowaste.com

Waste Management Options and Climate Change. AEA 2002

- "Overall, **source segregation** of MSW, followed by **recycling** (for paper, metals, textiles and plastics) and **composting/AD** (for putrescible wastes) **gives the lowest net flux of greenhouse gases** compared to other forms of treatment of bulk MSW"

3. The ZERO 2020 strategy outlined

Zero Waste 2020

- No to incinerators
- No to landfills
- No to a throwaway society
- Yes to a sustainable society
- Zero Waste is an idealistic goal, but
- Zero Waste 2020 puts it into a realistic timeframe
- Zero Waste is a new direction
- Moving from the back end of waste disposal
- to the front end of resource management and industrial design for sustainability

To achieve Zero Waste

We need three things:

- 1) INDUSTRIAL RESPONSIBILITY (at the front end)
- 2) COMMUNITY RESPONSIBILITY (at the back end)
- 3) GOOD LEADERSHIP (in both places)

Industrial Responsibility - designing waste out of the system

- 1) Design for sustainability - **sell to the present, share with the future**
- 2) Clean Production
- 3) Extended Producer Responsibility (EPR)

Extended Producer Responsibility

- In the future industries should plan on having to take back their products and packaging, unless they are reusable, recyclable or compostable
- Some European Laws are already moving in this direction

Extended Producer Responsibility - packaging

- **The Ontario (Canada) Beer industry has been using refillable glass bottles for 50 years**
- **98% recovered**
- **Each bottle reused 18 times**
- **It saves the company money**
- **2000 jobs in collection and cleaning**
- **No cost to municipality**

Extended Producer Responsibility - products

XEROX CORPORATION EUROPE

- Recovers copying machines from 16 different countries
- Takes them to huge warehouses in the Netherlands, where the machines are stripped down for parts and materials
- **95% of materials recovered for reuse or recycling!**
- This is saving Xerox **\$76 millions a year!!**

**Solid waste is the visible
face of inefficiency!**

For more examples of Industrial Responsibility

- Contact Gary Liss at gary@garyliss.com
- For more information on EPR initiatives contact Bill Sheehan at
- Bill@productpolicy.org

COMMUNITY RESPONSIBILITY

Classification of Discarded materials

- 1. Avoidables (e.g. throwaway plastic objects)
- 2. Reusables (e.g. furniture, appliances)
- 3. Toxics (e.g. paint, oil, batteries)
- 4. Compostables (e.g. food scraps)
- 5. Recyclables (e.g. paper, glass, metals)
- 6. Residuals
- Residuals = "bad industrial design"



Community
Initiatives to
Reduce
waste

**Composting
Facility**

**Materials
Recovery
Facility**

**Residual
Screening
& Research
Facility**



Household toxics



**Composting
Facility**

**Materials
Recovery
Facility**



**Reuse & Repair
& Deconstruction**

**The ABC
of
Community
Responsibility**

**Composting,
Recycling,
Reuse etc**

Compostaggio rurale



MATERIALS RECOVERY FACILITY



at Pier 96

Burlington, Vermont

- Recycle North (27 employees, gross income over \$700,000) offers an excellent model of reuse, repair, **job training** and deconstruction - **see video**.
- www.recyclenorth.org
- See also Urban Ore, Berkeley
- Revolve, Canberra, Australia
- Waste Wise, Georgetown, Ontario
- EcoCycle, Boulder, Colorado

**So much for the familiar
ABC of Community
Responsibility, what
about the DEF?**

The D & E of Community Responsibility

D= DISCIPLINE
E= EDUCATION

Linking
Community Responsibility
with
Industrial and Commercial
Responsibility

And the larger steps needed
to move towards
a sustainable Society

3

Community
Initiatives to
Reduce
waste

**Residual
Screening
& Research
Facility**

Household toxics

The residual fraction is the key difference between waste disposal and the Zero Waste strategy

- Waste disposal (eg incineration) attempts to make the residuals disappear
- **Zero Waste 2020** needs to make the residuals VERY VISIBLE, because...
- **Residual Fraction** = bad industrial design and bad commercial decisions
- We need better industrial design and more responsible commerce to move towards sustainability

RESIDUAL SCREENING FACILITIES

- These facilities are operating in **Nova Scotia (Canada)**

RESIDUAL SCREENING FACILITY



**MORE
RECYCLABLES**



MORE TOXICS



**NON-TOXIC, NON-BIODEGRADABLE
FRACTION**



INTERIM LANDFILL



**DIRTY
ORGANIC
FRACTION**



**BIOLOGICAL
STABILIZATION**



**We need to improve on
these facilities by adding
a RESEARCH CENTER for
the non-recyclable
fraction**

RESIDUAL SCREENING & RESEARCH FACILITY

NON-RECYCABLE MATERIALS

**Local
University**

Or
Technical College

- 1) Improve capture rate for reuseables, recyclables and clean compostables
- 2) Recommend waste avoidance strategies to municipality and local businesses
- 3) Develop local uses for some materials
- 4) Recommend better design to industry
- 5) Develop alternatives to toxics in products

WITH THE ZERO WASTE 2020 STRATEGY

WE CONVERT 3 TONS OF TRASH

into:

1 ton of compostables

1 ton of recyclables

and

1 ton of EDUCATION!

The Message to Industry:

- If we can't reuse it, recycle it or compost it,
- Industry shouldn't be making it!!!

We need **E**DUCATION to
get to the **F**ront End

**Local initiatives
(commercial and
governmental) to reduce
throwaway items**

Italy

- A supermarket chain near Florence is providing dispensers which allow customers to refill **shampoo** and **detergent** bottles...
- Others **wine, water** and **milk**

Alcune iniziative italiane per la riduzione



ABBIAMO RIUTILIZZATO

IN ALCUNI PUNTI VENDITA GIÀ STIAMO UTILIZZANDO GRANDI DISTRIBUTORI
CHE CONSENTONO DI ACQUISTARE L'ACQUA

USANDO ALMENO 40 VOLTE LO STESSO CONTENITORE.

- Un pizzico di creatività a monte può far risparmiare milioni a valle

Ireland

- Has a 15 cent tax on plastic shopping bags - reduced use by over 90% in one year
- 80 towns in Australia have banned plastic shopping bags completely

4. Zero waste Initiatives around the world

- www.GRRN.org
- www.ZWIA.org

San Francisco

- Population = 850,000
- Very little space
- 50% waste diverted by 2000
- 63% waste diverted by 2004
- 75% waste diverted by 2010 (goal)
- 100% (or very close!) by 2020 – Zero Waste

Ontario

- The city of Markham (north of Toronto) has diverted 70% from landfill in 2 years.
- **Contact: Councillor Erin Shapiro**
- eshapero@markam.ca
- www.Markham.ca

New Zealand

- Over 50% of communities have declared a Zero Waste strategy

Italy

- 600 communities in Italy are achieving over 50% diversion using “door to door” collection systems
- Their programs are some of the most cost effective in the world
- Developed to get clean organic material to farmers by Agricultural School in the Parco Monza near Milan
- Enzo Favoino
- Use biodegradable plastic bags

Italy

- Novara - (near Turin, population = 100,000) achieved 70% diversion in just 18 months!

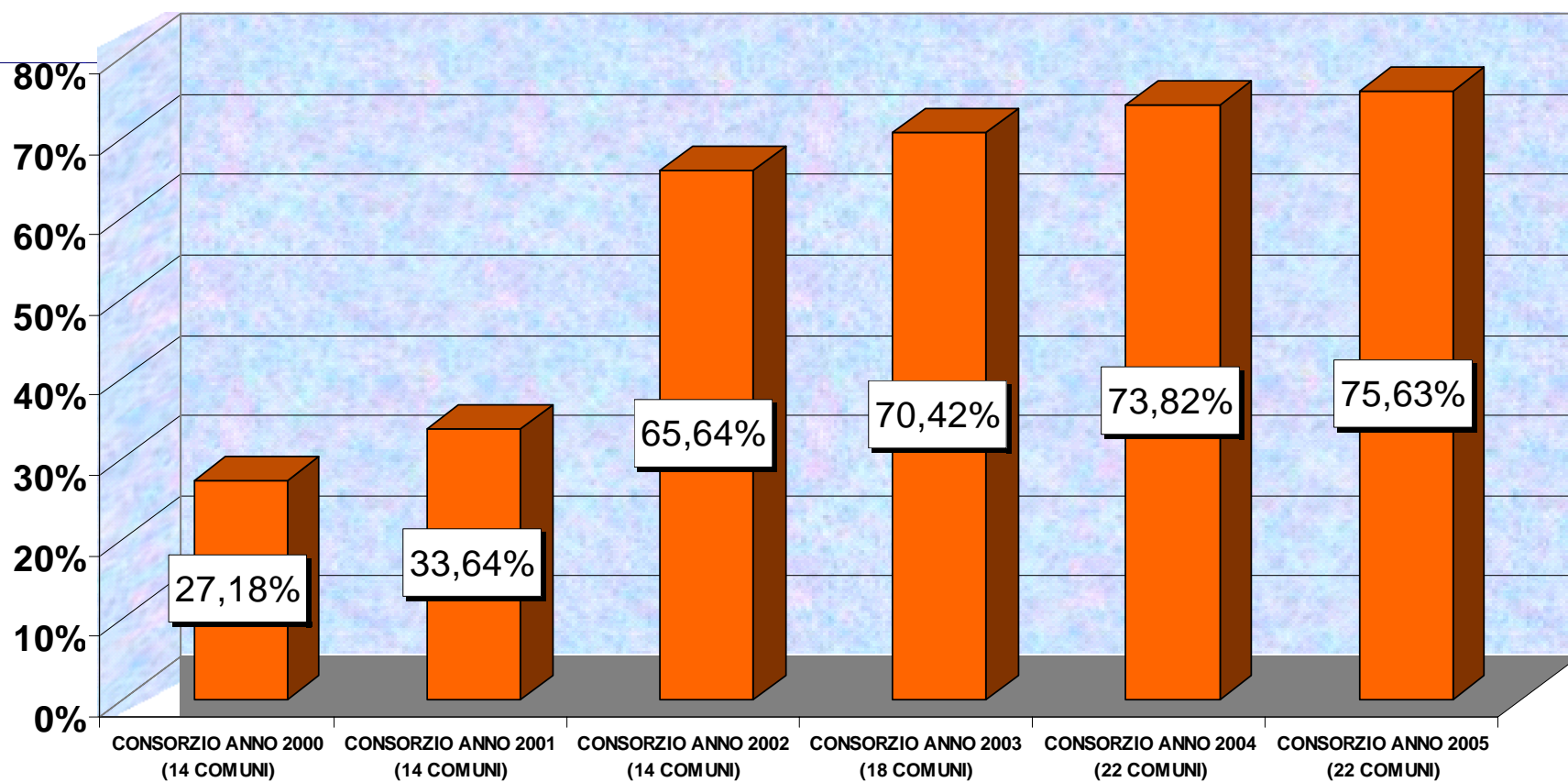
Italy

- 4 communities near Salerno in the south of Italy are diverting 60- 70%

Italy

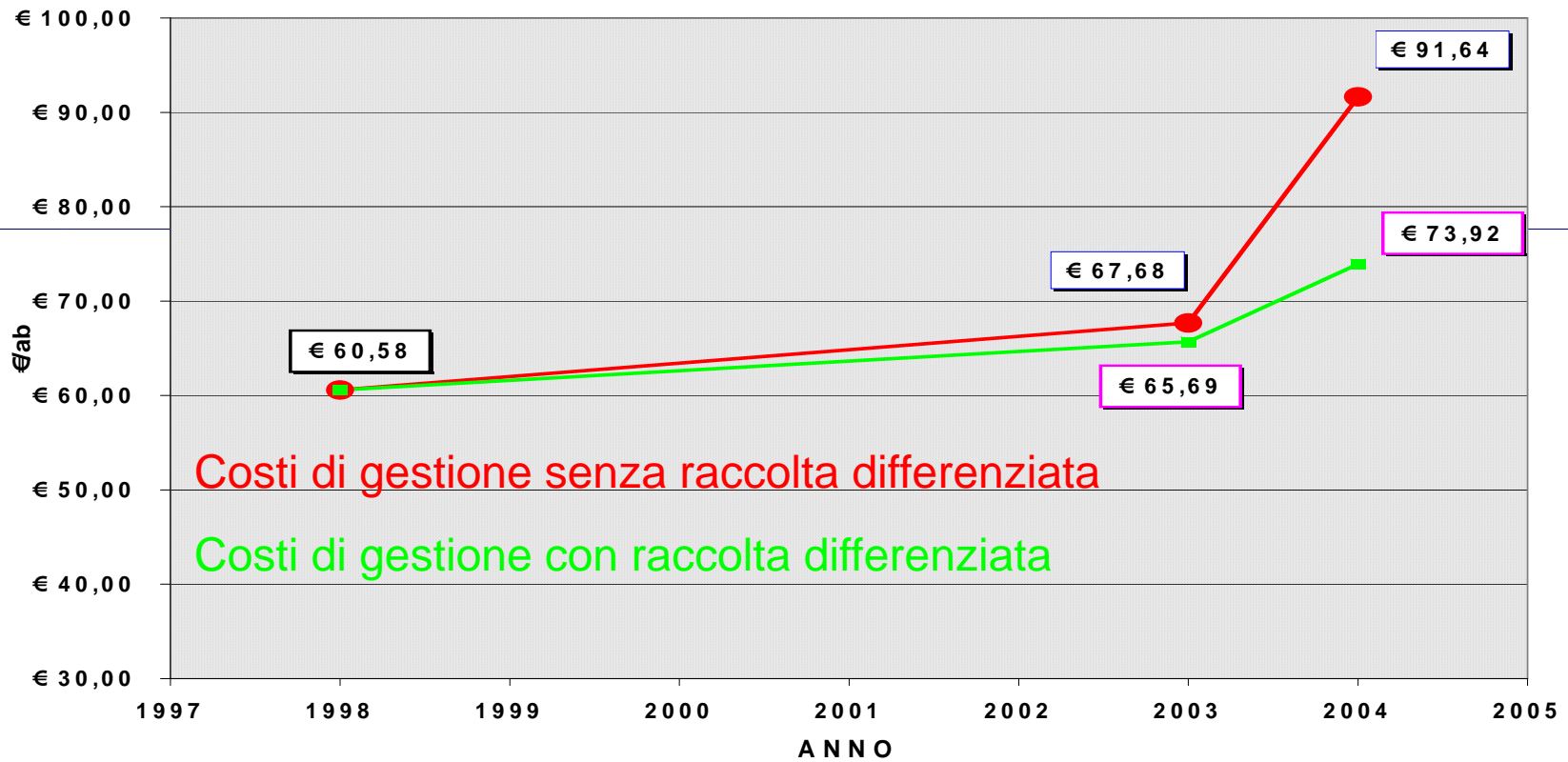
- In the Treviso region...

RISULTATI QUANTITATIVI AUMENTO % RACCOLTA DIFFERENZIATA



DIFFERENZIATA COSTA DI PIU?

ANDAMENTO DEI COSTI DI GESTIONE OPERATIVA
CON E SENZA RACCOLTA DIFFERENZIATA



The Economics is on our side!



Nova Scotia

- 50% diversion in 5 years (Halifax ~ 60%)
- 1000 jobs created collecting and treating discarded materials
- Another 2000 jobs created in the industries handling the collected material
- Nearly all the separated materials are re-used in Nova Scotia's own industries.

GOOD LEADERSHIP

We need leaders with

A big vision

Imagination

Have a willingness to work with
citizens and citizen activists

and ...

WHO ARE NOT BORING!

**Boring experts think
with the wrong end of
their bodies !**

A BACK END THINKER...



1. A CUP
2. A BUCKET
3. A FOOT PUMP
4. AN ELECTRIC PUMP

A FRONT END THINKER...



Einstein

A clever person
solves a problem

A genius
avoids it!

Conclusions

The Zero Waste Strategy addresses five key issues:

- 1. **Individuals** must be more careful about what they buy
- 2. **Industries** must be more careful about what they make
- 3. **Retailers** must be more careful about the packaging they use
- 4. **Communities** must be more responsible in the way that discarded materials are collected and handled
- 5. **Education** has a key role in linking waste management to the fight against Global Warming and linking with other steps towards a sustainable society...



Sustainable agriculture

Education

Architecture

Industrial design

Zero Waste 2020

Sustainable Energy

Community development

Sustainable Economic Development

**Resource Management
too important to be left to
“waste” experts!**

**In the battle for
sustainability we need to
involve experts from
many other fields**

**A sustainable society is a
Zero Waste Society**

VIDEOS

On the Road to Zero Waste:

Part 1: Nova Scotia, Canada

Part 2: Burlington, Vermont, US

Part 3: Canberra, Australia

Part 4: San Francisco

ZERO WASTE: Idealistic Dream or Realistic Goal?