发展循环经济：跨区域发展的指路灯

Circular Economy Development as Guideline in Interregional Sustainable Development

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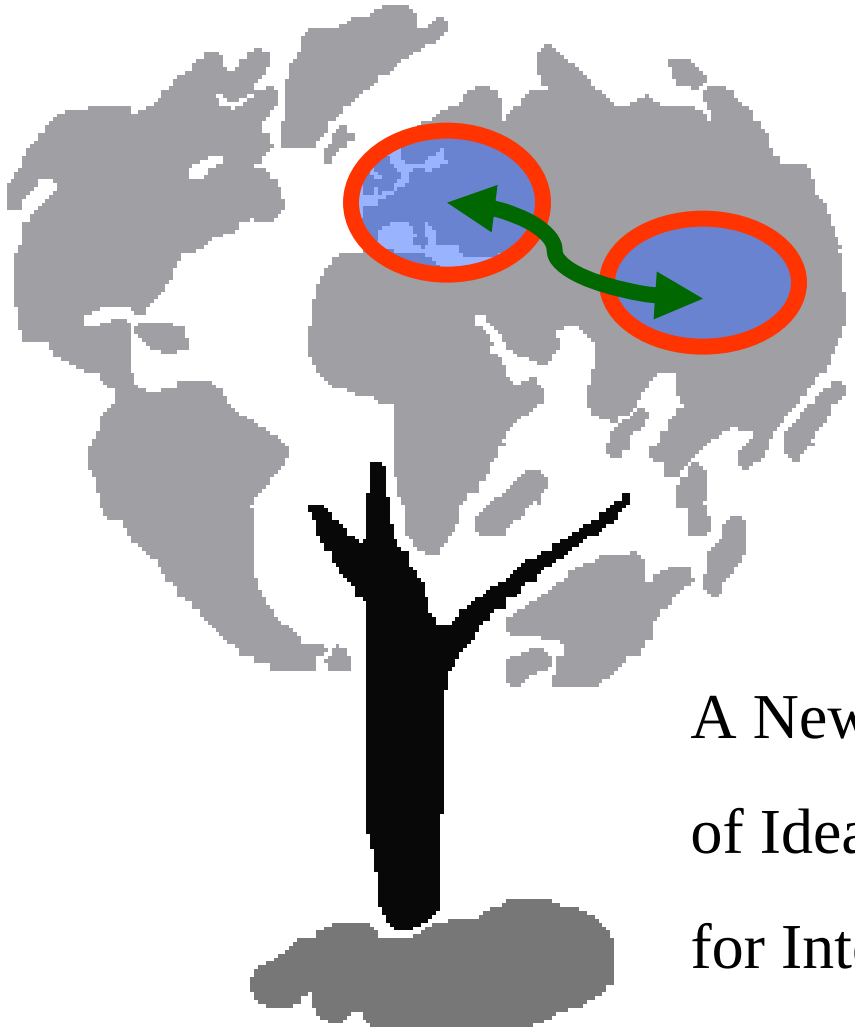
2009-06-30 RECAST Urumqi at the University of Heidelberg



跨区域的可持续性发展：通往创新与科技的新丝绸之路！

A New SILK ROAD

of Ideas and Technologies

for Interregional Sustainable Development

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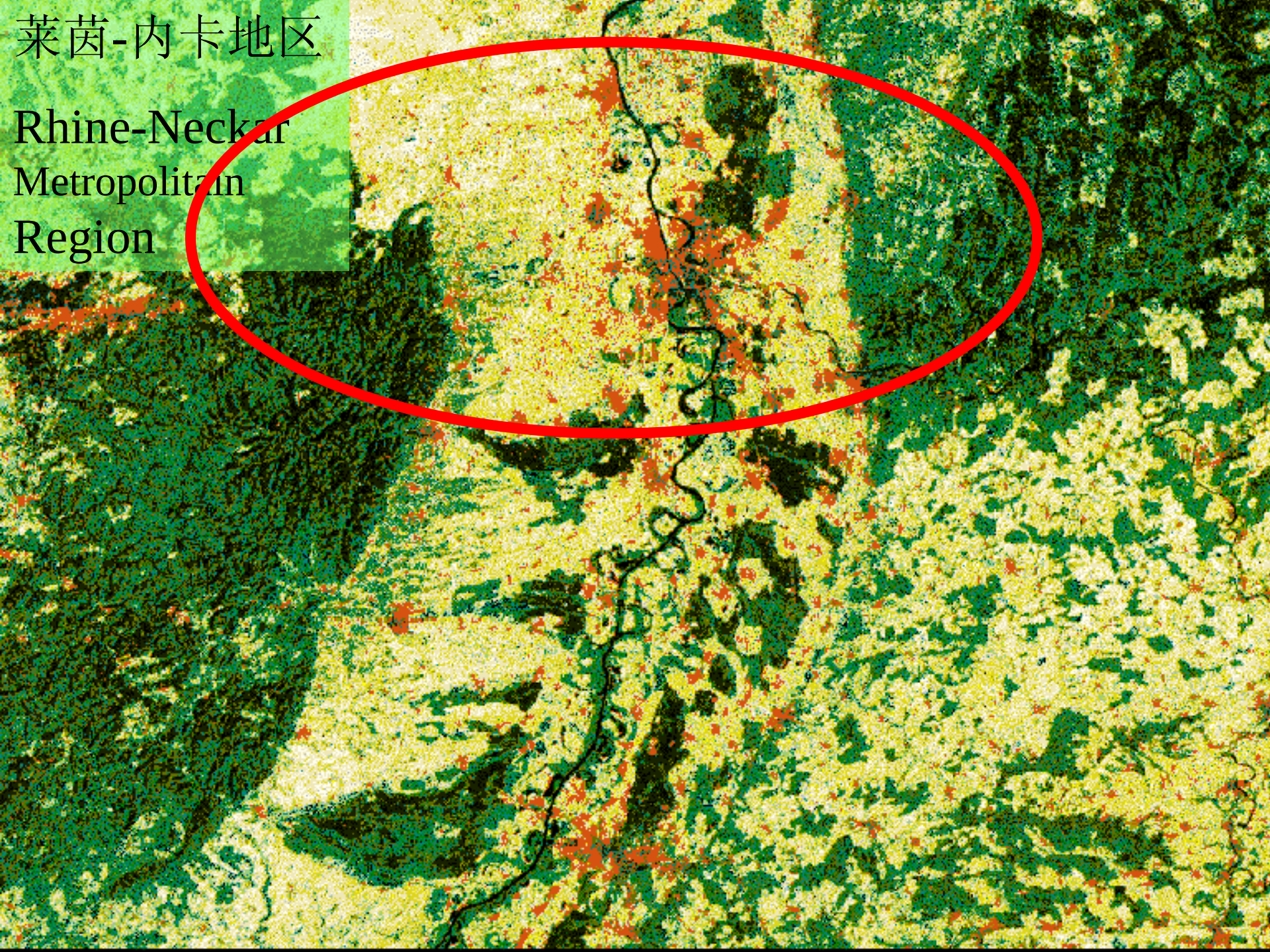
2009-06-30 RECAST


莱茵-内卡地区
Rhine-Neckar
Metropolitan
Region

veltmanagement

c. Günter Beuermann
haftliche Fakultät

leh/Frank Czymmek

betrieblichen
ücksichtigung
lerinteressen

1993

II/93

Die Wirtschaft

Nachrichten der
Industrie- und Handelskammer
Rhein-Neckar

The discharge from a paper mill (r), here pouring out of a huge pipe, is a major source of water pollution. Below: Waste of an affluent society creates unsightly hills in every populated area.

Burke Uzzle, Magnum

Erich Hartmann, Magnum

ENCYCLOPEDIA YEAR BOOK

1971

amounting to as much as 20 per cent of its total content.

The pollution of the Rhine has been largely the result of West Germany's postwar industrial renaissance, but the reckless use of agricultural pesticides has contributed too. Emergency procedures were instituted, new laws passed, and communities and industries along the Rhine were required to build new plants for the treatment of effluent. Whether the river can be cleaned up, at high cost and perhaps in opposition to what is traditionally called economic progress, remains to be seen.

THE AMERICAN PEOPLES ENCYCLOPEDIA YEAR BOOK 1971

河水净化需大量的资金投入，
高成本的投入也许会被传统
地看作为经济发展的倒退。
是否河水在大投入下能得到净化，
仍然拭目以待。

不仅仅美国处於环境的恶化情况中，环保问题也不仅是美国政府的当急要务。1970年春，欧洲环保委员会在法国斯特拉丝堡召开大会，决定在世界范围内组建环境保护管理系统。该项决议的产生也是由於欧洲的环境问题迫在眉睫。典型的例子是长达820米，经流6个国家的莱因河河水及河床含近20%的工业废物及污物。

莱因河深受西德战前工业复兴之害。除此之外，对农药的滥用也是导致河水污染的原因。对此人们采取了紧急措施，颁布了新的法令。莱因沿岸社区和工业被呼吁制定治污的计划。河水净化需大量的资金投入，高成本的投入也许会被传统地看作为经济发展的倒退。是否河水在大投入下能得到净化，仍然拭目以待。

德国循环经济的发展

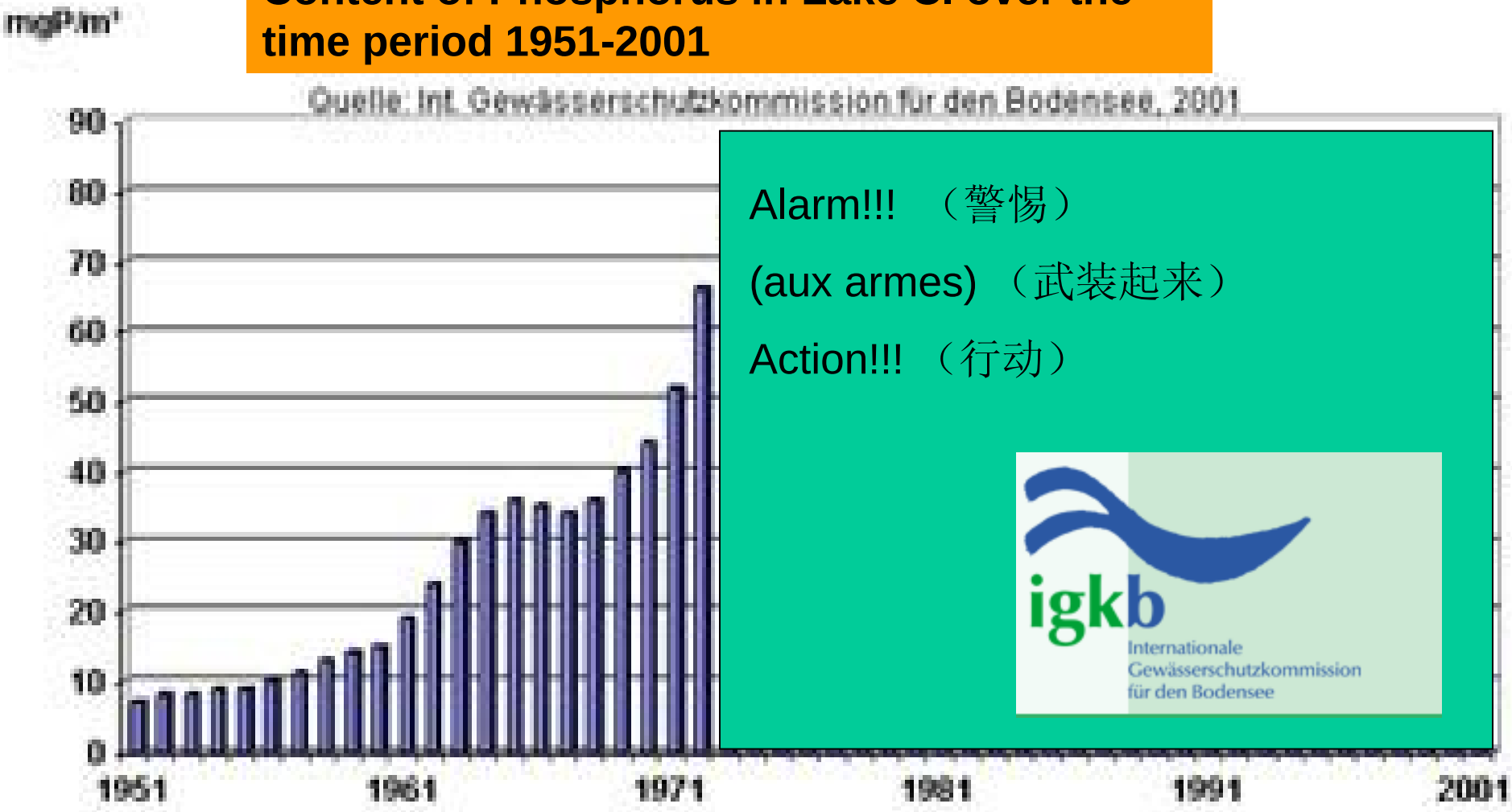
1970 濒临生态崩溃

废水治理

2005 100% 净水处理设备

1951-2001 博登湖中磷的含量

Content of Phosphorus in Lake C. over the time period 1951-2001



Alarm!!! （警惕）

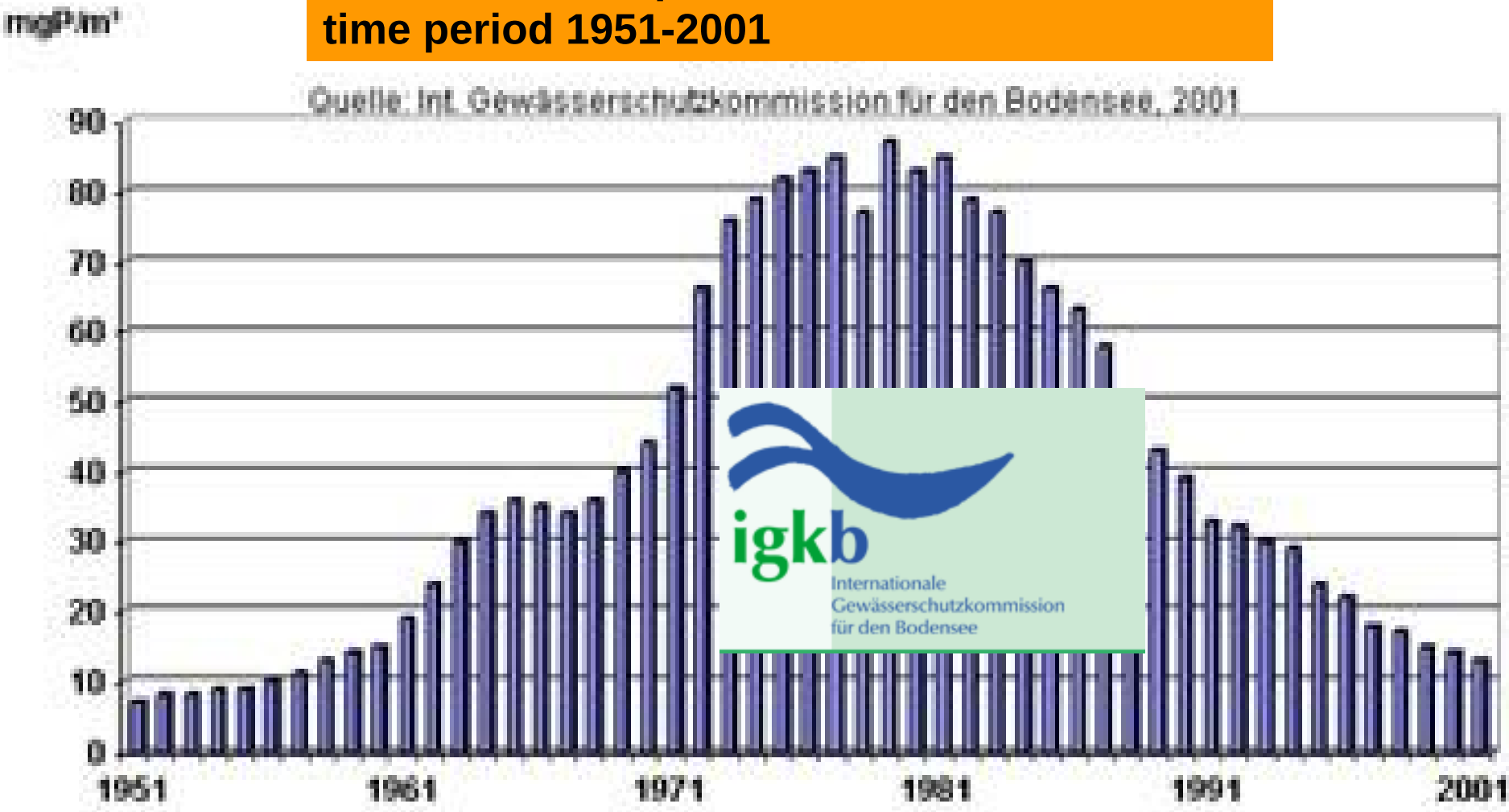
(aux armes) （武装起来）

Action!!! （行动）

igkb
Internationale Gewässerschutzkommission für den Bodensee

1951-2001 博登湖中磷的含量

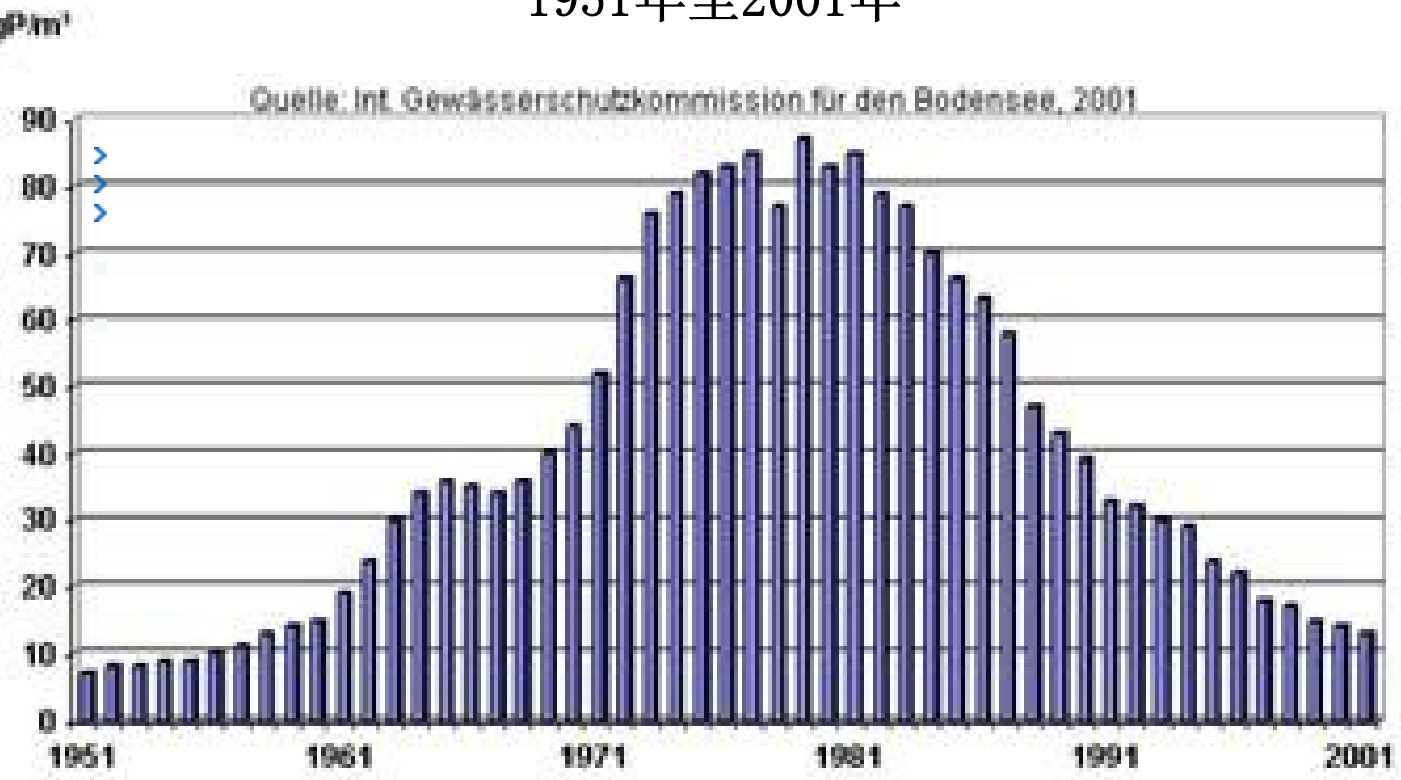
Content of Phosphorus in Lake C. over the time period 1951-2001



国际博登湖水域保护委员会

igkb
Internationale
Gewässerschutzkommission
für den Bodensee

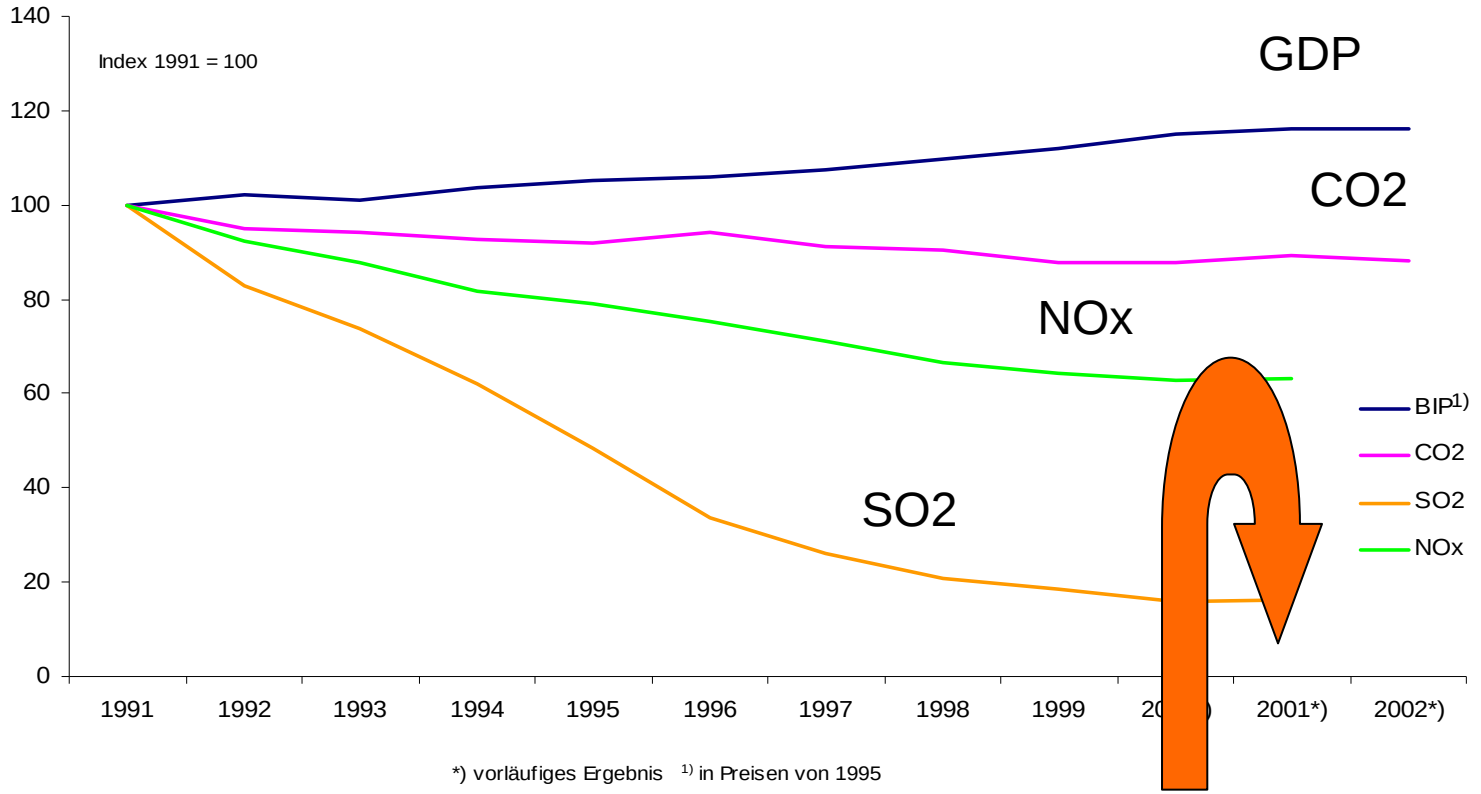
博登湖湖水均质含磷总量
1951年至2001年



循环经济在德国的发展过程

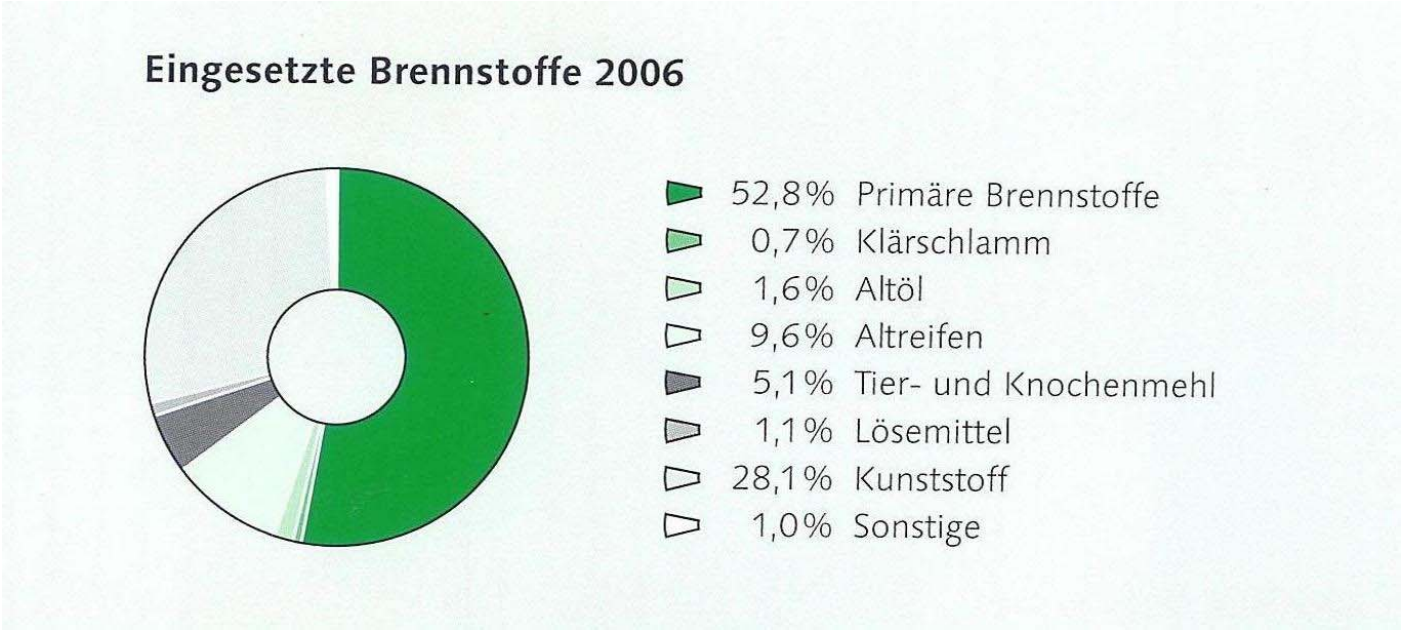
Progress of Circular Economy Development in Germany

经济的发展和生态效率的提高
Economic Development and Increase of Eco-Efficiency



Gipsum: + 6 Mill. t/a

Source: Federal Statistical Bureau

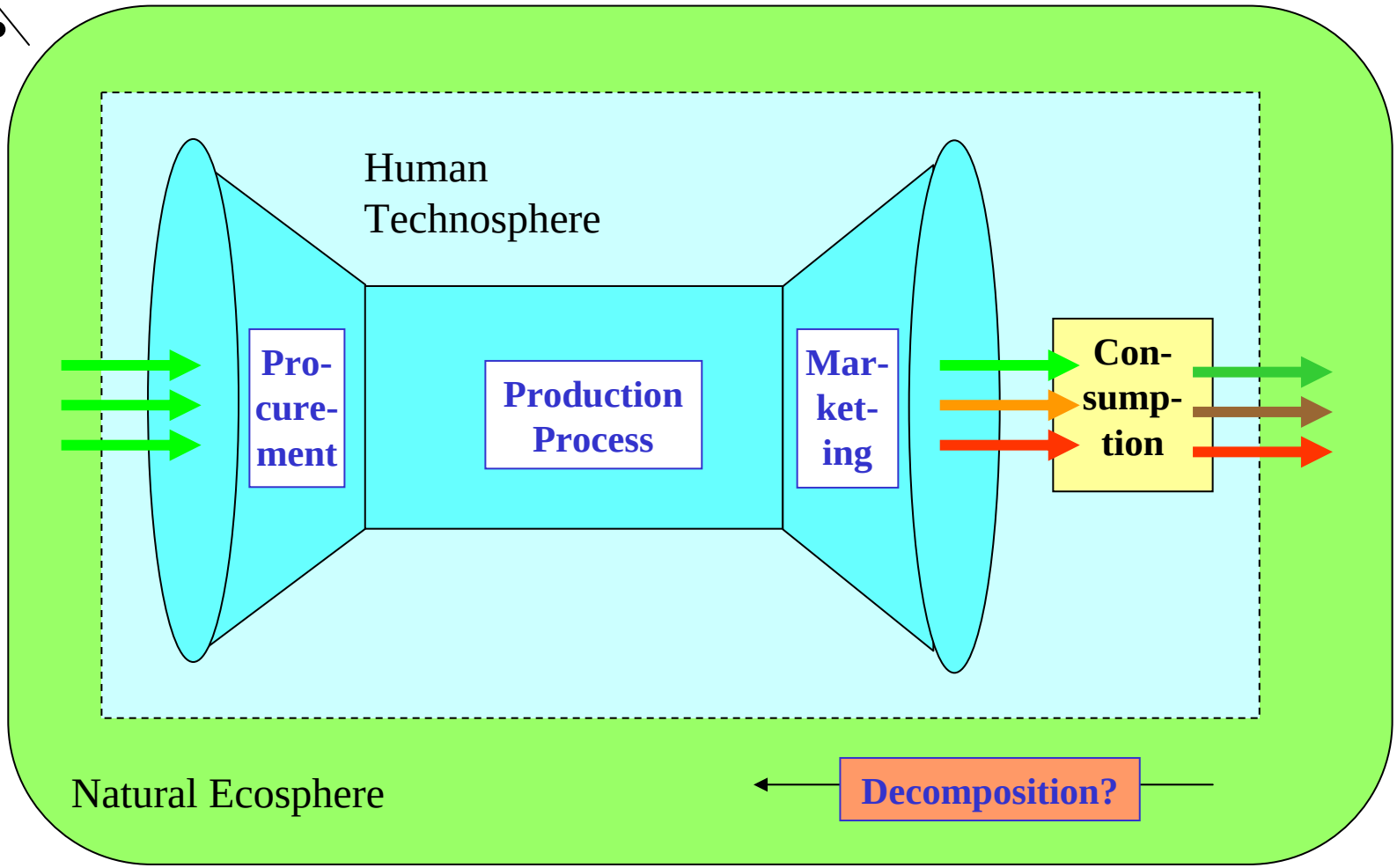


In 2006, more than 47% of the fuel for cement production is secondary material:
28 % of fuel used plastics,
9.6% of fuel used tires
etc.
at Heidelberg Cement Germany

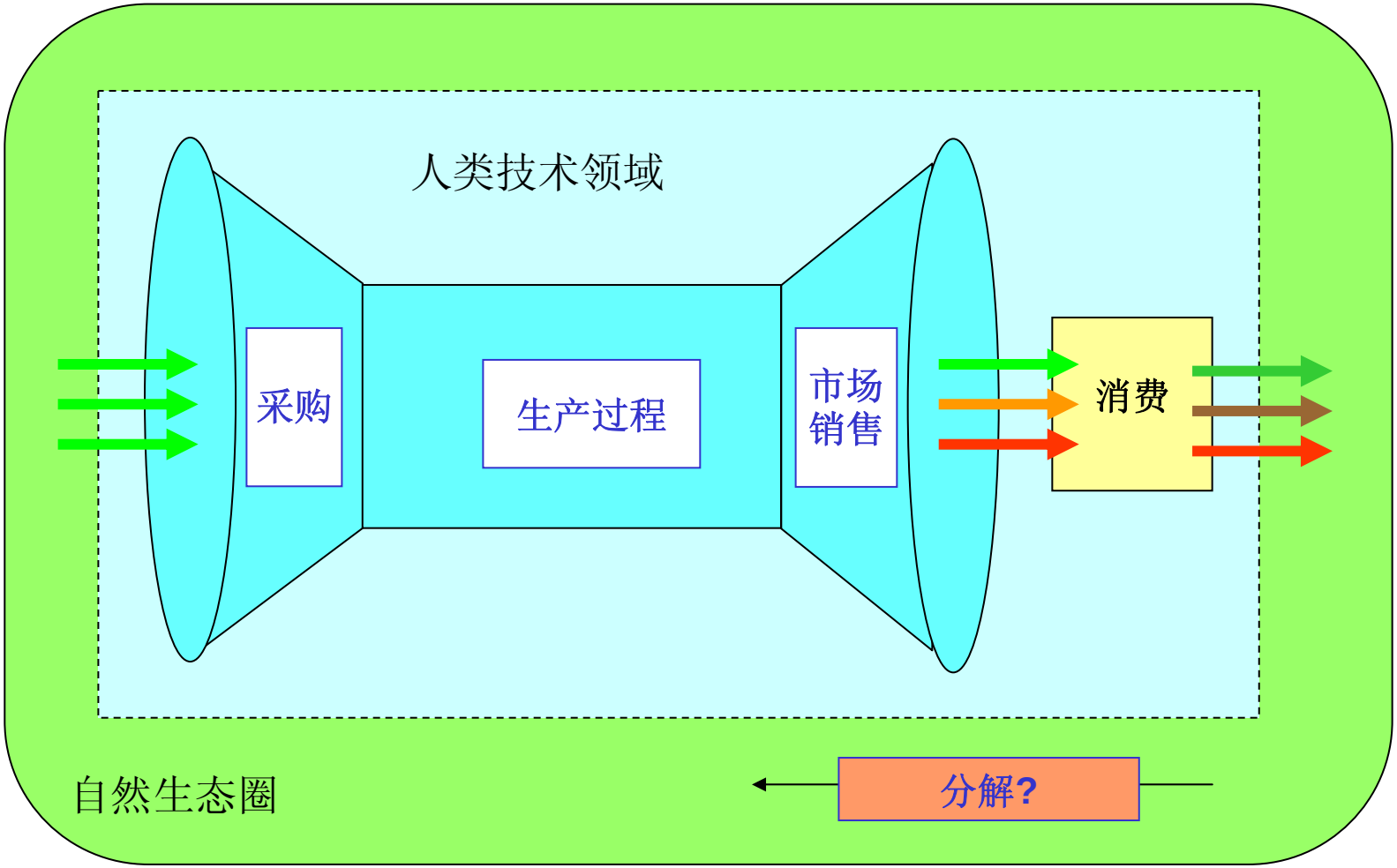
2006年，在海德堡水泥厂的生产过程中，超过47%的燃料来源于回收再利用的原材料，其中：
28%来自回收的旧塑料，
9.6%来自回收的旧轮胎

传统生产过程模型

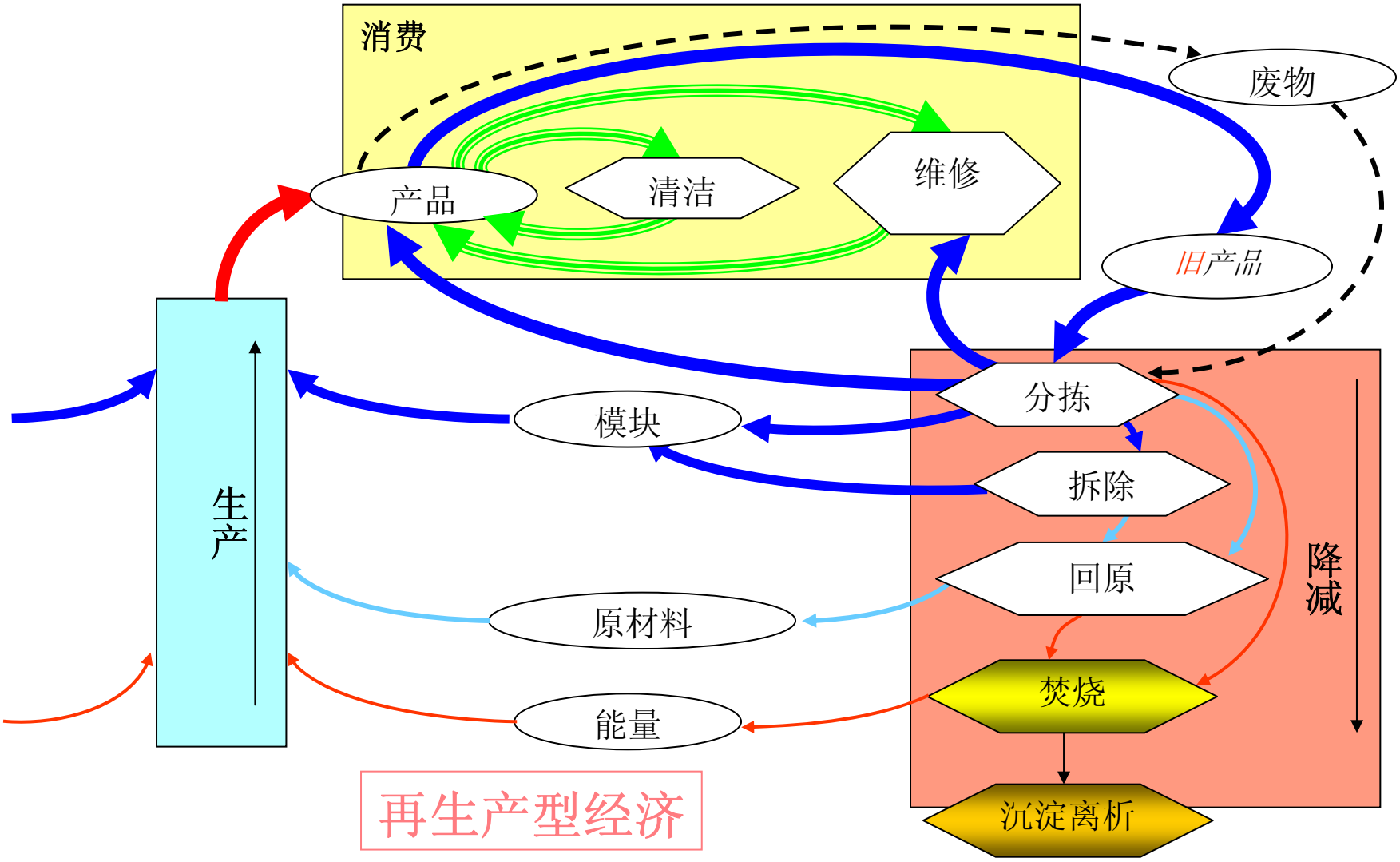
Model of traditional industrial throughput system



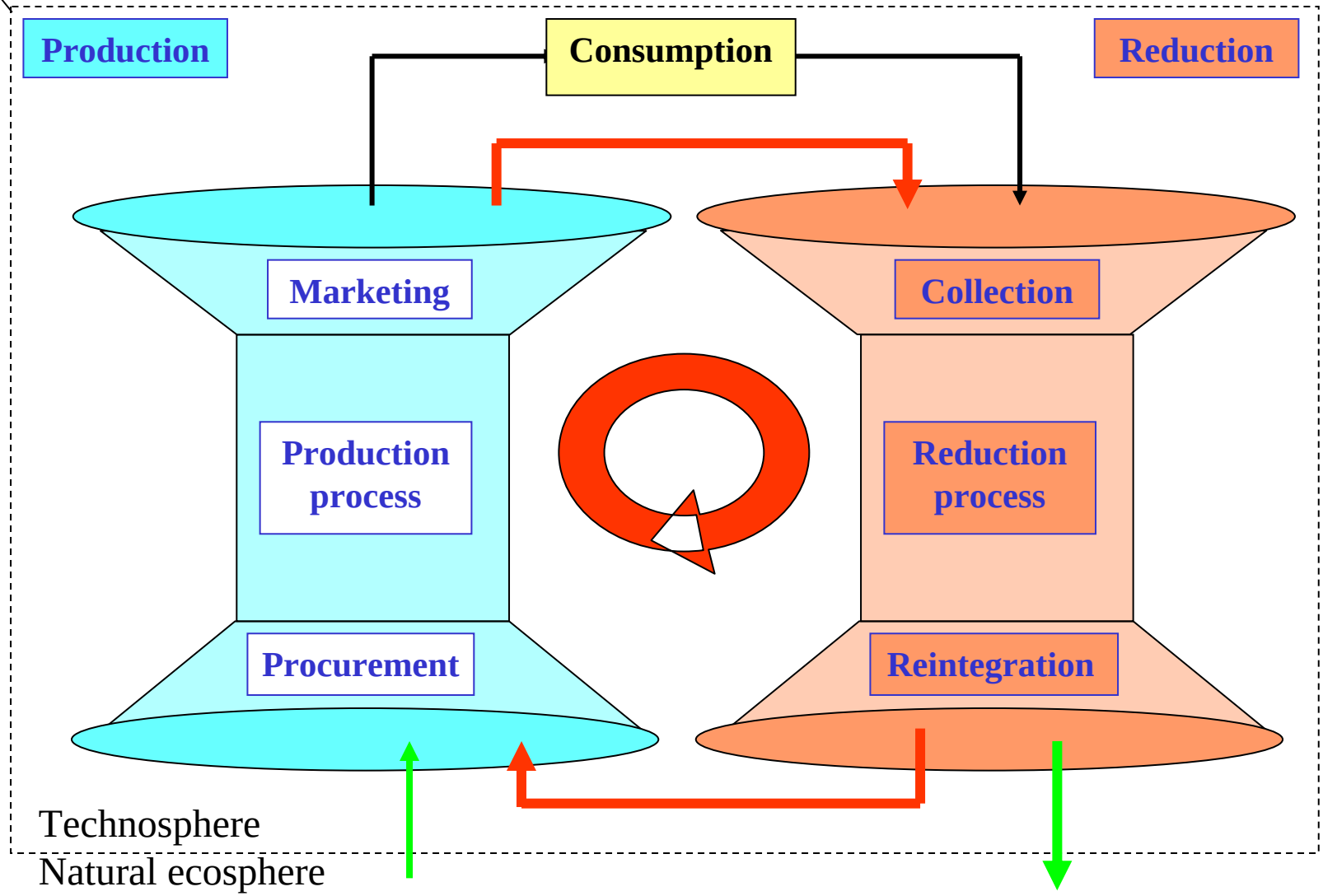
物质经济的发展历程



再生产型经济的基本元素



Model of sustainability oriented material flow management



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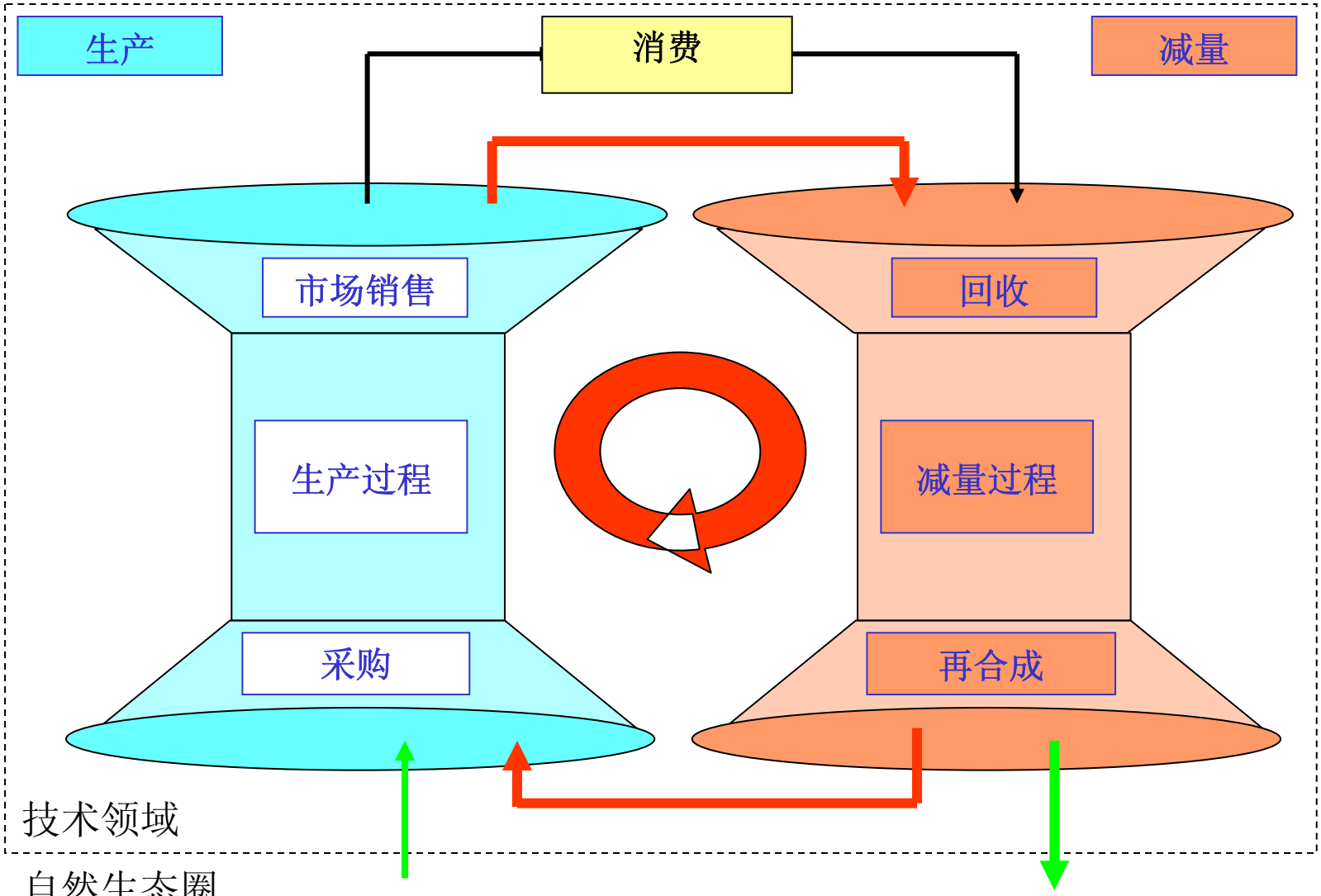
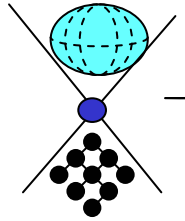




State Policy, Laws and Regulations

Legislation,
the Value System of
Society and
Institutions

Corporate Policy

Production Planning

Product Planning

Benefit

(+)

Recycling

(+)

LABOR

Preproducts

Production

Consumption

Waste Disposal

(-)

Rawmaterial

Natural Ressources

(-)

)

Emission
Waste

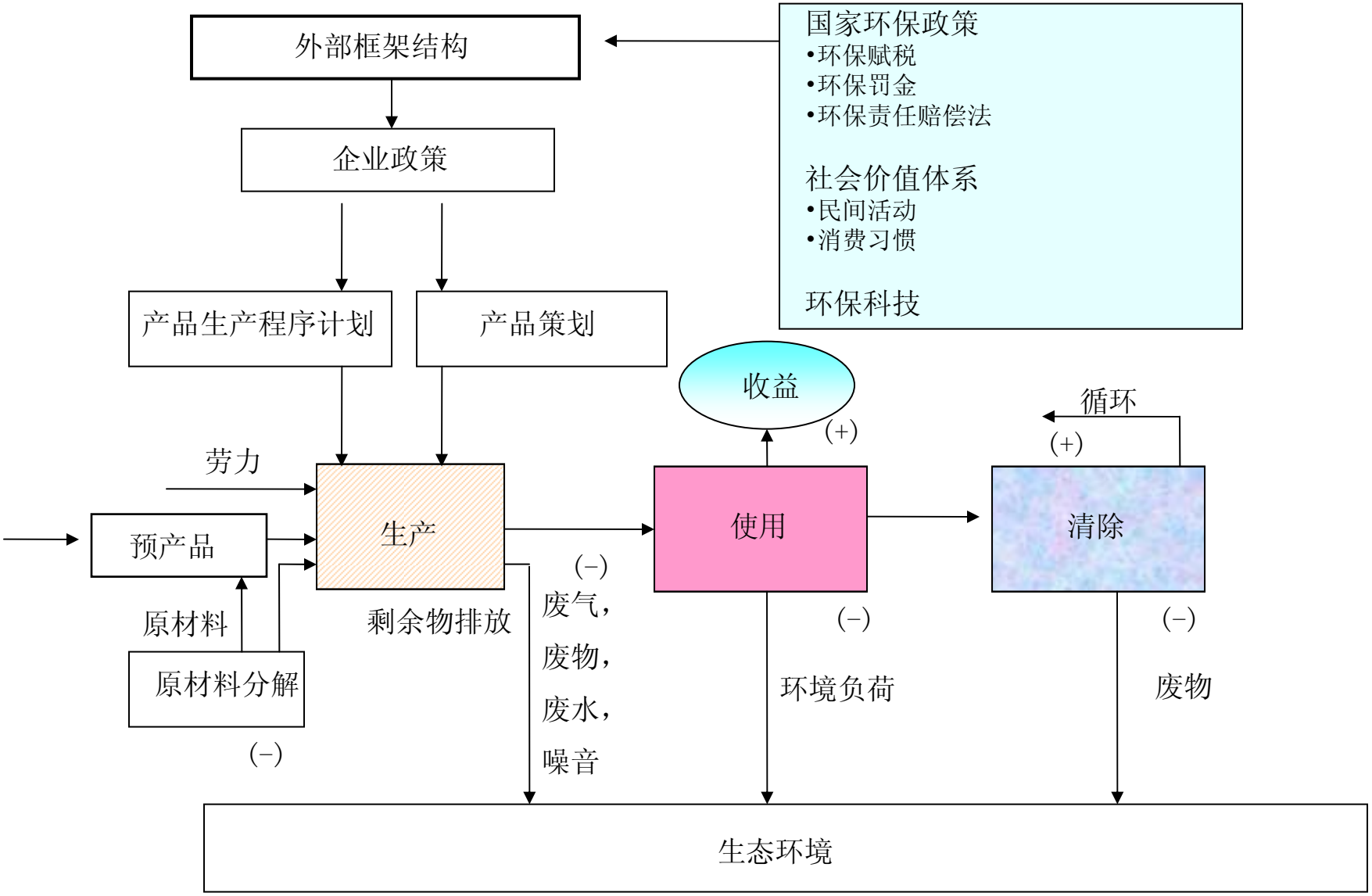
Noise

(-)

(-)

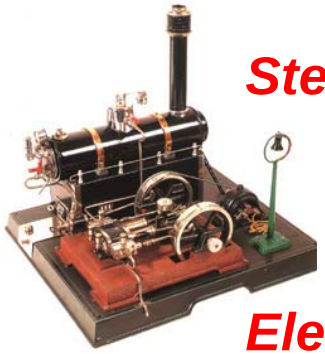
WASTE

Natural Environment


外部框架结构
企业政策
国家环保政策
•环保赋税
•环保罚金
•环保责任赔偿法
社会价值体系
•民间活动
•消费习惯
环保科技
产品生产程序计划
产品策划
收益
(+)
循环
(+)
劳力
预产品
生产
使用
清除
(–)
废气，
废物，
废水，
噪音
剩余物排放
(–)
环境负荷
(–)
废物
原材料
原材料分解
(–)
生态环境

Historical Lines of Technical Development

1. Technical Revolution
第一次科技革命



Steam Engine
蒸汽机

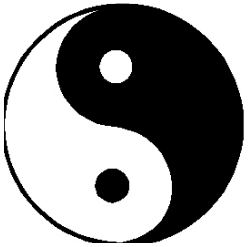
2. Technical Revolution
第二次科技革命

Electricity
电力

3. Technical Revolution
第三次科技革命

Electronics
电子

4. Technical Revolution
第四次科技革命



Circular Economy/
Reproduction Economy
循环经济 / 再生型经济

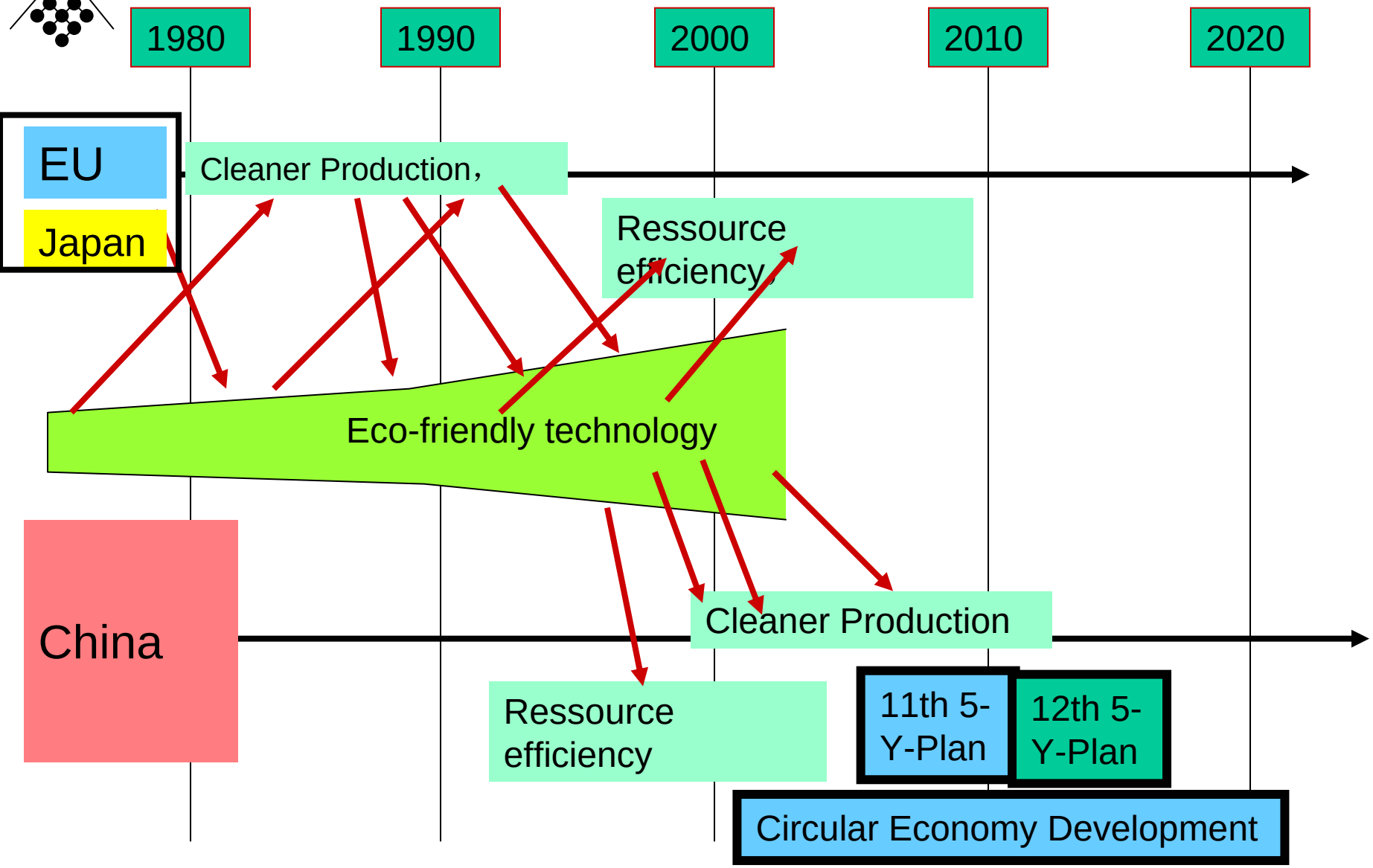
莱茵-内卡地区

Rhine-Neckar Metropolitain Region

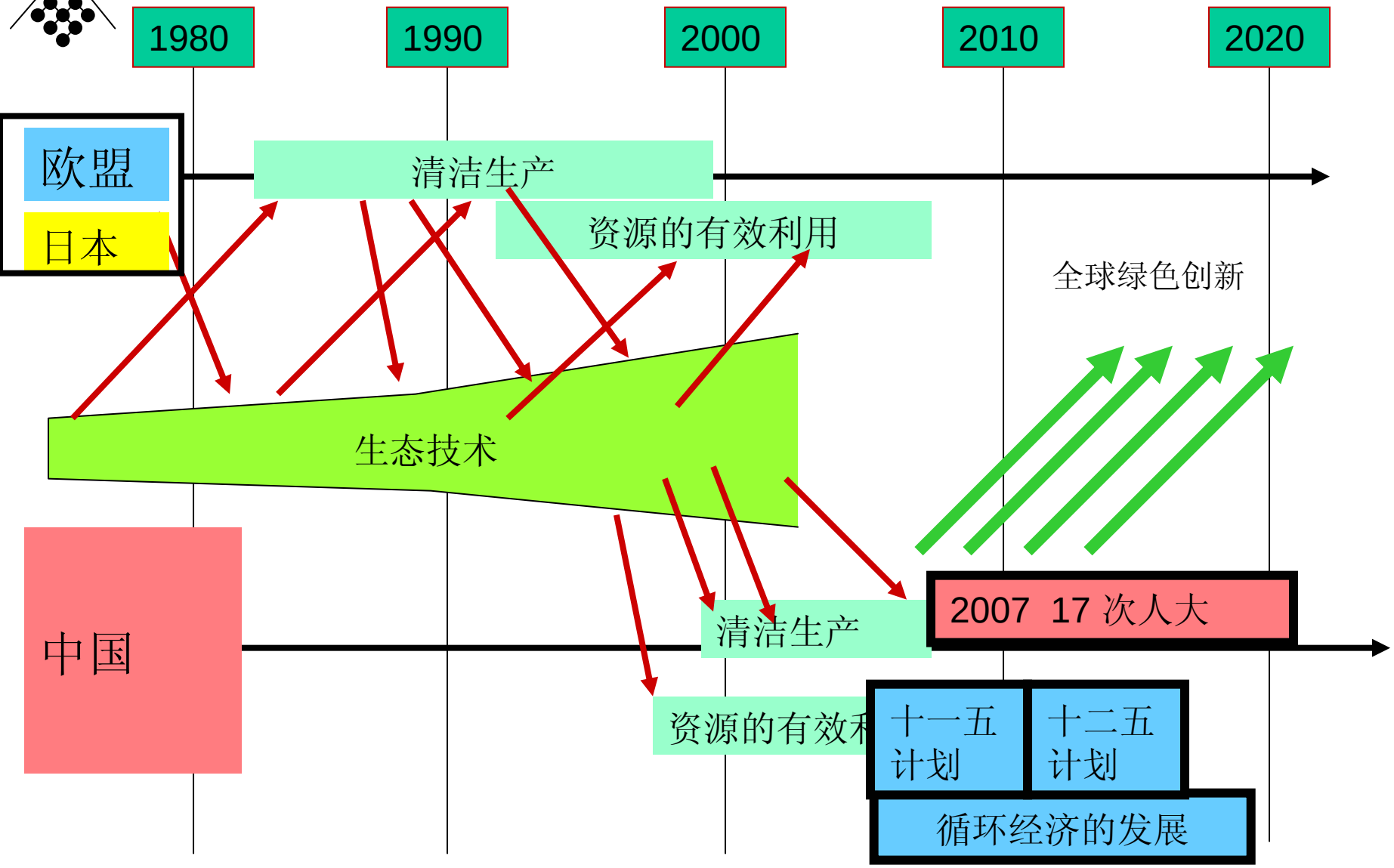
可持续性发展

Sustainable Development

Circular Economy Development- Global Learning Processes



发展循环经济：全球经济的新课题



乌鲁木齐 Urumqi

角色模型，指引并号召行动

Model as Guidance and Call for Action (Role Model)

The Effects of Good Governance
by **Ambrogio Lorenzetti**
from the 14th Century
in the City Hall of Siena, Italy

(Partial View)

“有关良好统治的示意图”，**Ambrogio Lorenzetti**，创作于14世纪的锡耶纳，意大利 （局部图）

Role Model 角色模型

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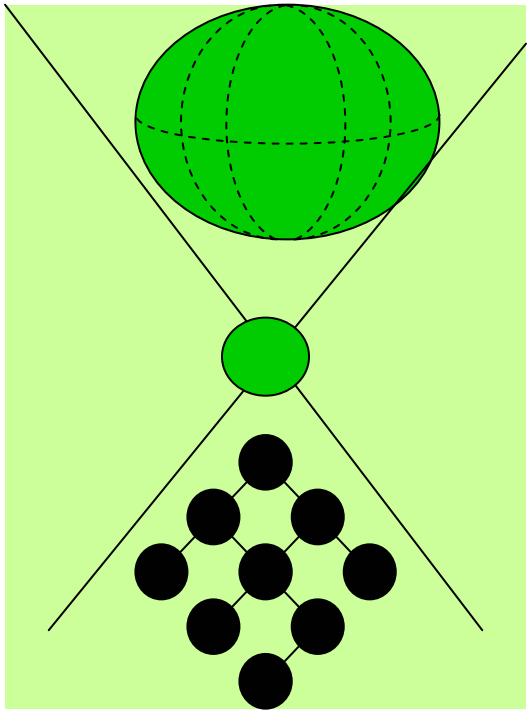
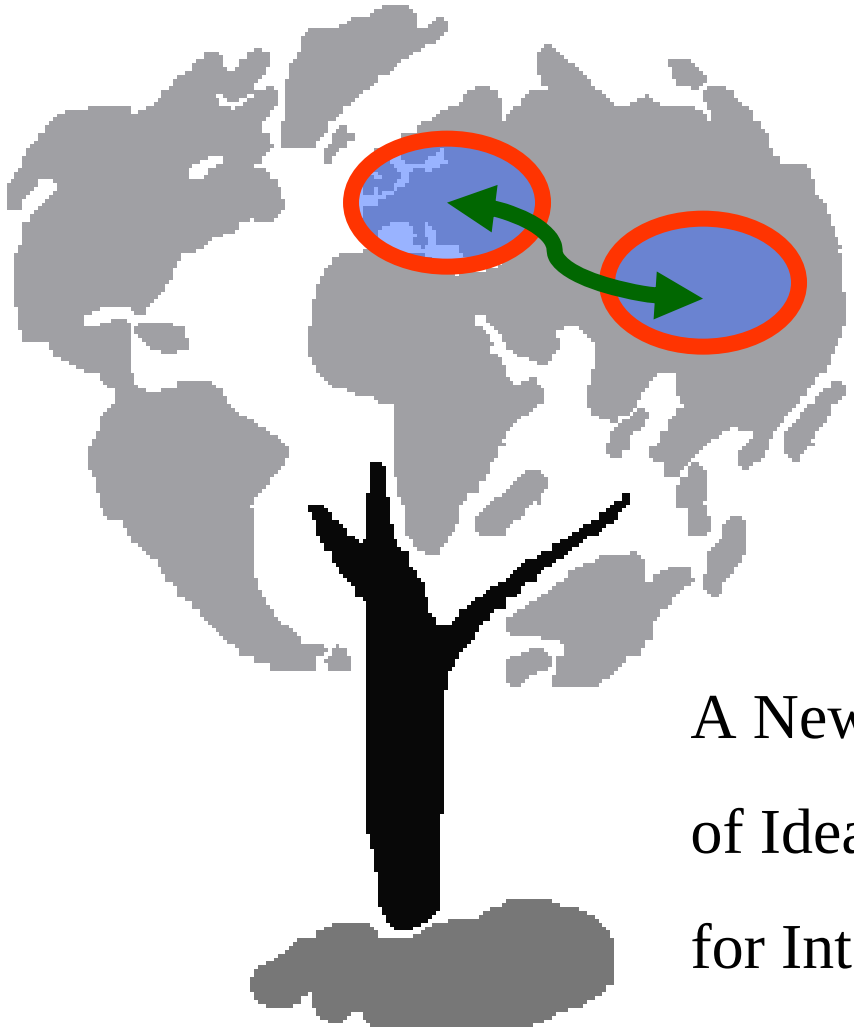


Meeting the Resource Efficiency Challenge in a ClimAte SensiTive Dryland Megacity Environment

Urumqi as a Model City for Central Asia



跨区域的可持续性发展：通往创新与科技的新丝绸之路！

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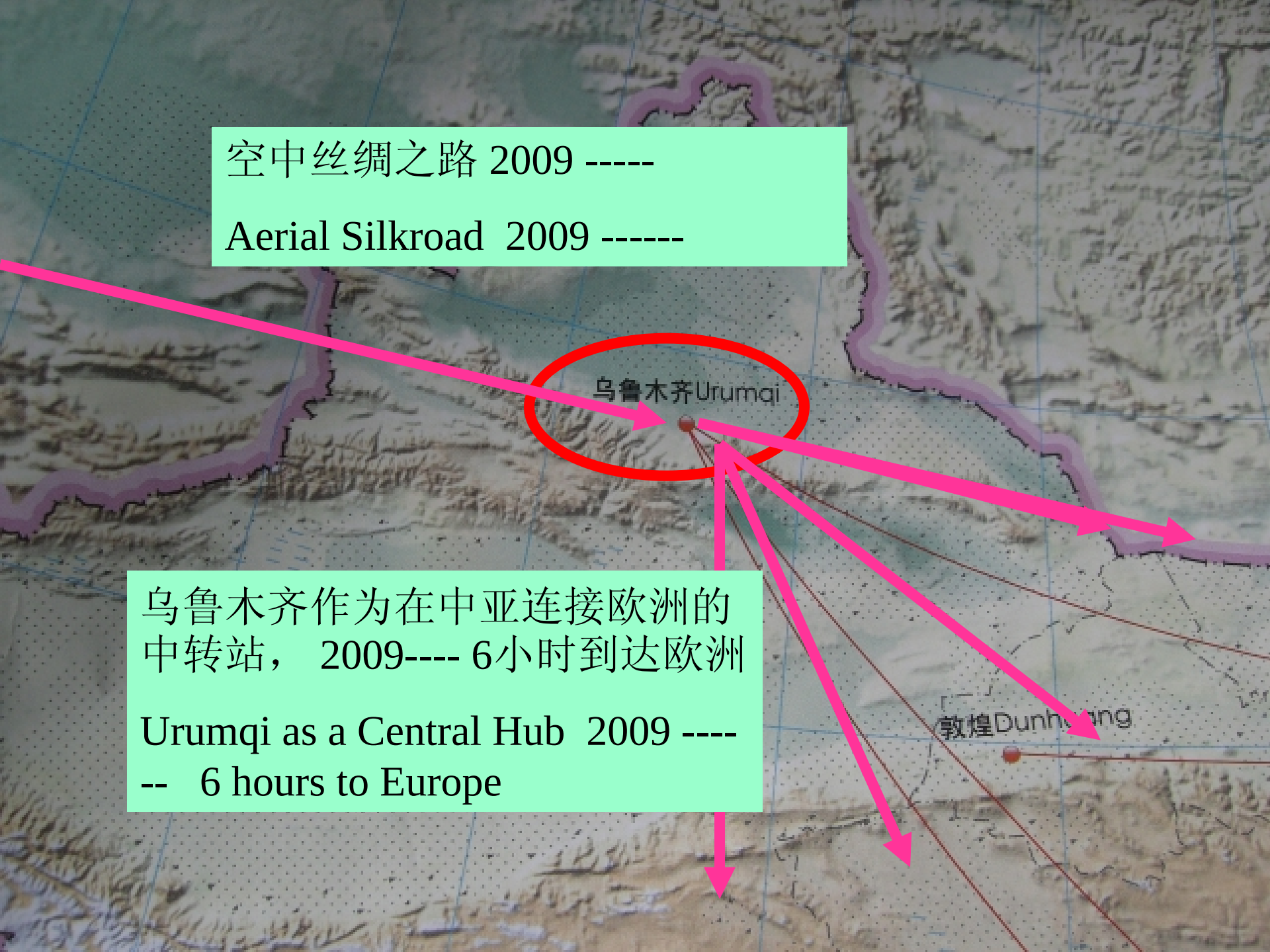
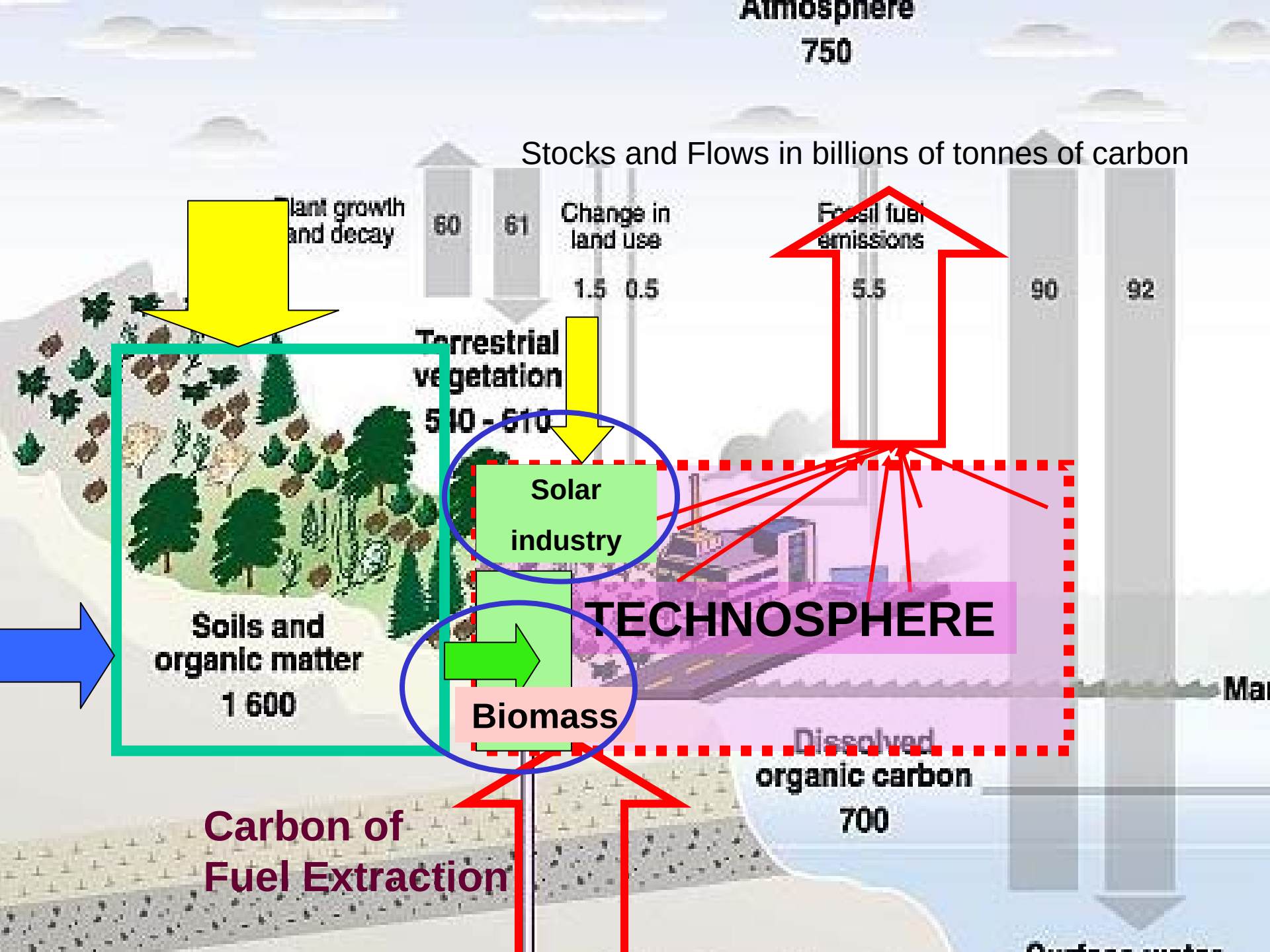
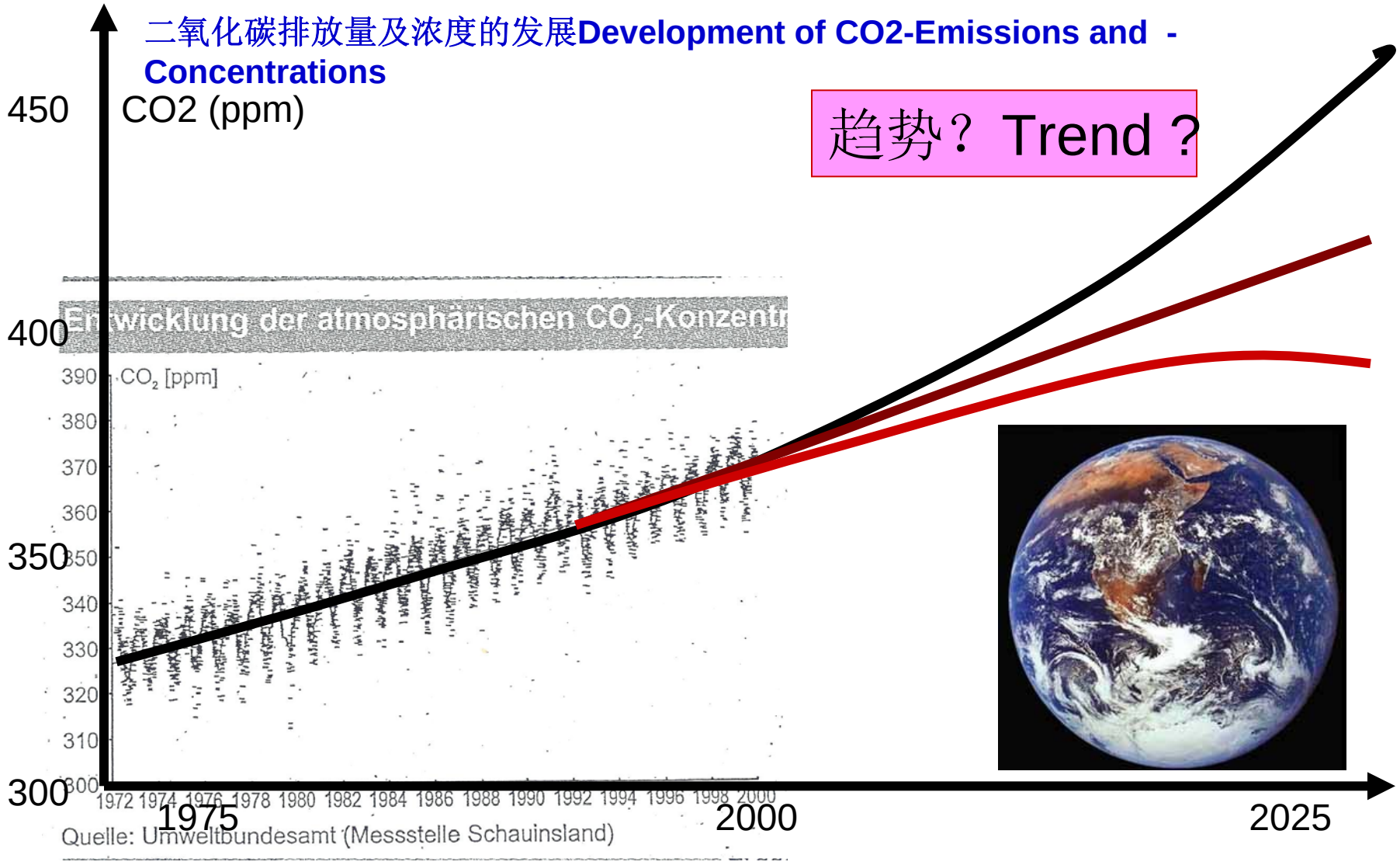

空中丝绸之路 2009 -----
Aerial Silkroad 2009 ------
乌鲁木齐Urumqi
乌鲁木齐作为在中亚连接欧洲的中转站， 2009---- 6小时到达欧洲
Urumqi as a Central Hub 2009 ---- -- 6 hours to Europe

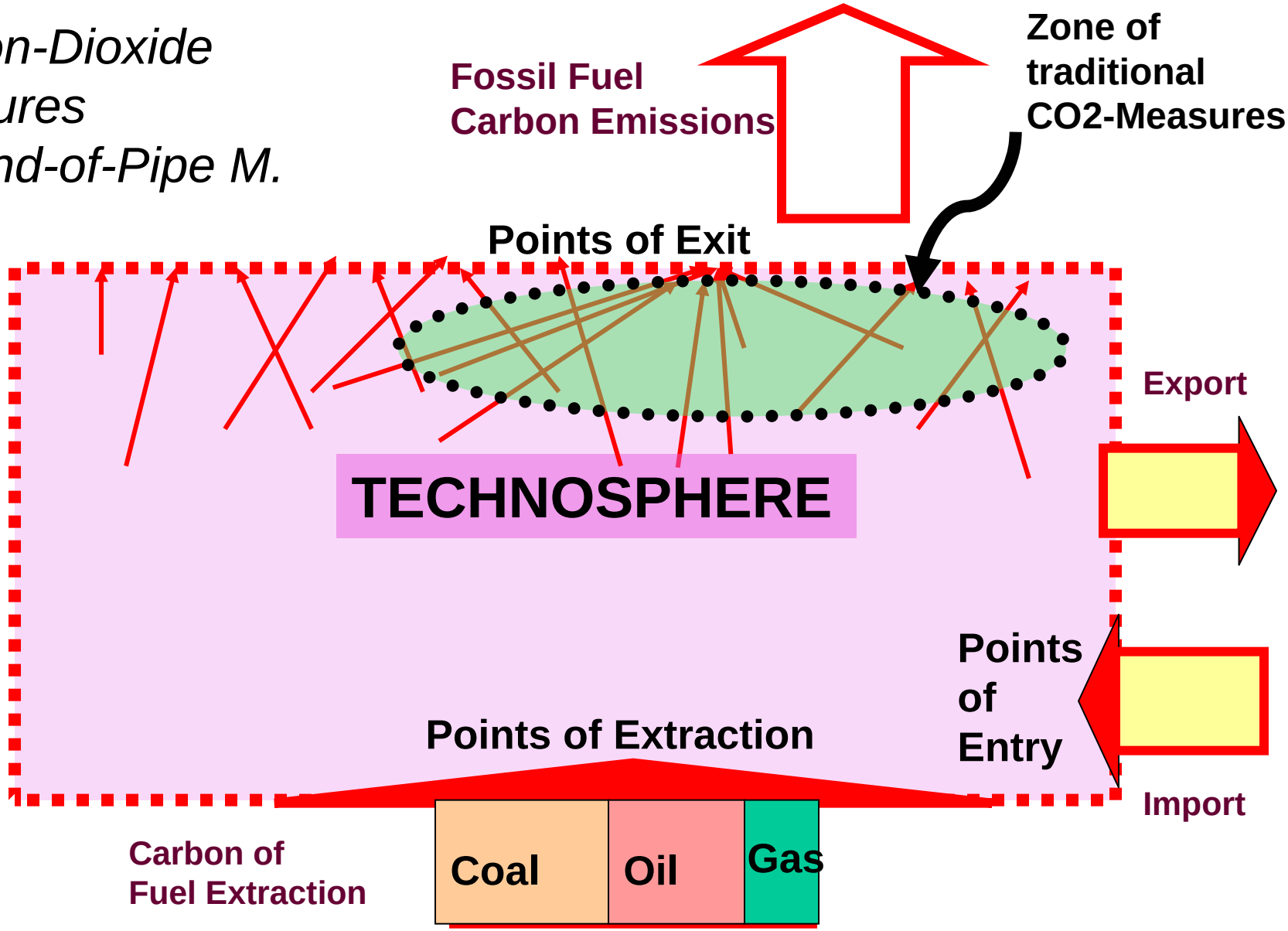

Atmosphere
750
Stocks and Flows in billions of tonnes of carbon
Plant growth and decay
60
61
Change in land use
1.5
0.5
Fossil fuel emissions
5.5
90
92
Terrestrial vegetation
540 - 610
Solar
industry
TECHNOSPHERE
Soils and organic matter
1 600
Biomass
Dissolved organic carbon
700
Carbon of Fuel Extraction

二氧化碳排放量及浓度的发展Development of CO2-Emissions and -Concentrations



Carbon Flow Model on the regional/national/global scale

Carbon-Dioxide Measures are End-of-Pipe M.



从地区、国家、全球的视角来看待碳的流向