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per la salvaguardia
del creato

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**Why Can We Drink a Bottle
of Mineral Water in any
Street of Any City?
The Future World
is Made of
Rubbish!**

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The skepticism in the limited earth--- the future world is made of rubbish



- ◆ According to the brand, the water come from Cuocao spring, Changbai mountain (长白山, 错草泉) .



Why can we drink mineral water in a street of any city?

1, We are able to buy it, cheaply!



- ◆ It means that:

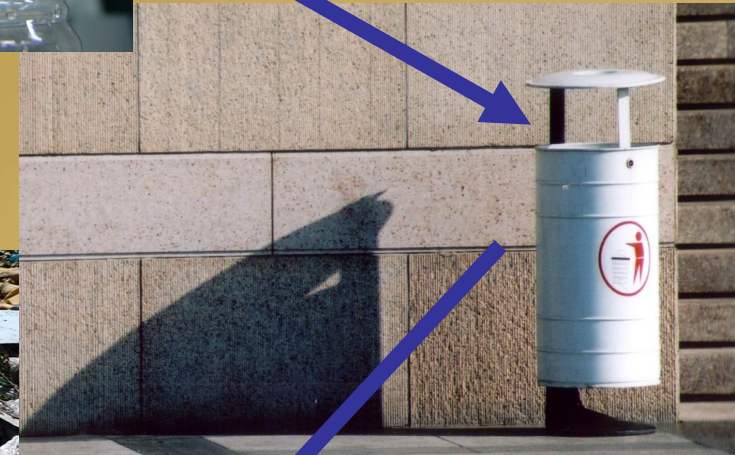


← The upper link

- ◆ A large amount of water was taken away from its original place!
- ◆ The water will no longer play its original ecological function for the human beings, animals and plants who live there!
- ◆ This is the first link of the **CHAIN** I will discuss, the upper link.

2, we are able to filter it,

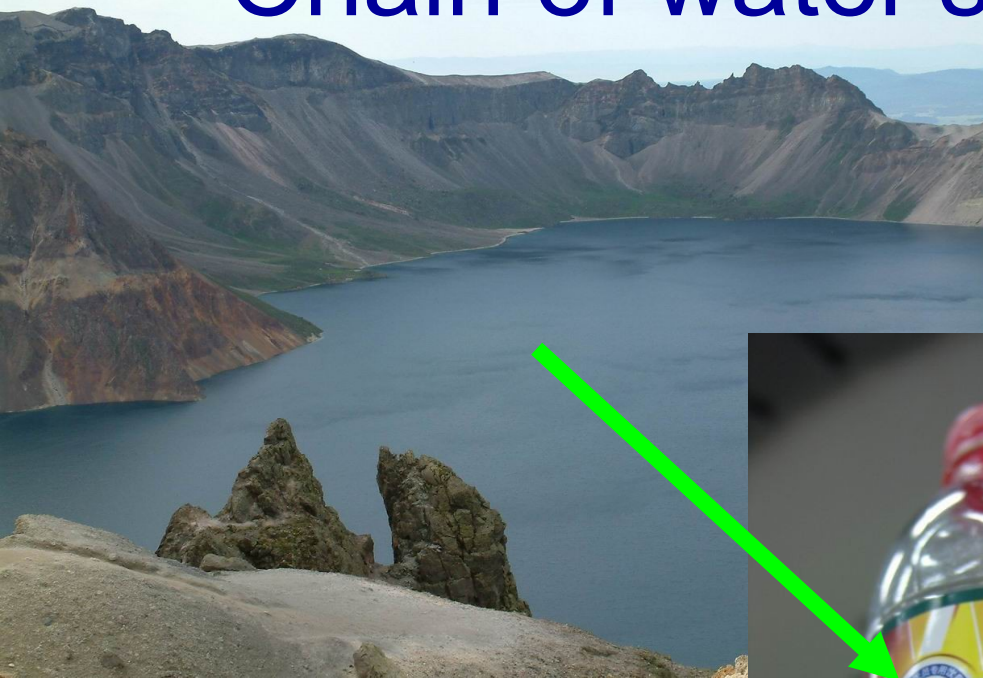
easily!



the lower link

- ◆ It means that:
- ◆ We must buy some land very cheaply for every city to place their rubbish, and then change the ecological system in that area.
- ◆ The human beings, animals and plants in that area can no longer live there as before.

Chain of water's transformation



Tianci lake, Changbai mountain, photoed by Liu Huajie(长白山天池, 刘华杰摄影)



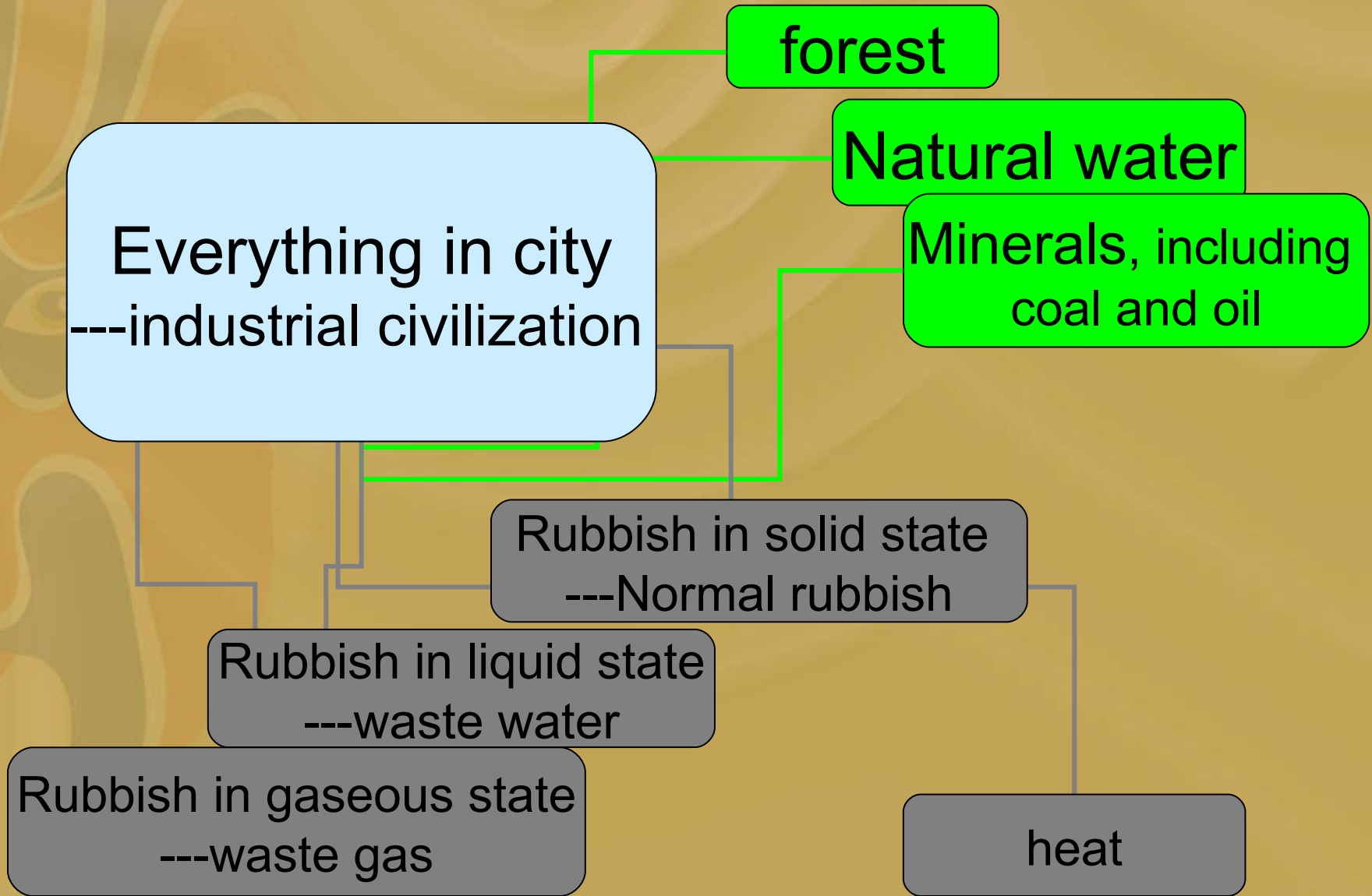
Rubbish in Baiwang mountain, Beijing. (北京百望山), Photoed by Liu Huajie (刘华杰摄影)



This is just an illustration.

I will give the term "rubbish" a general meaning as everything with high entropy state: including...

The chain of transformation of matter and energy of the earth



The simplified Chain



The up link

Matter and energy
in low entropy state,
Forest, natural water and mineral

contemporary
human civilization,
A machine which transforming
matter and energy into rubbish

The down link

Matter and energy
in high entropy state
Rubbish in solid, liquid and gaseous
and pure hot



Industrial civilization vs. heat engine

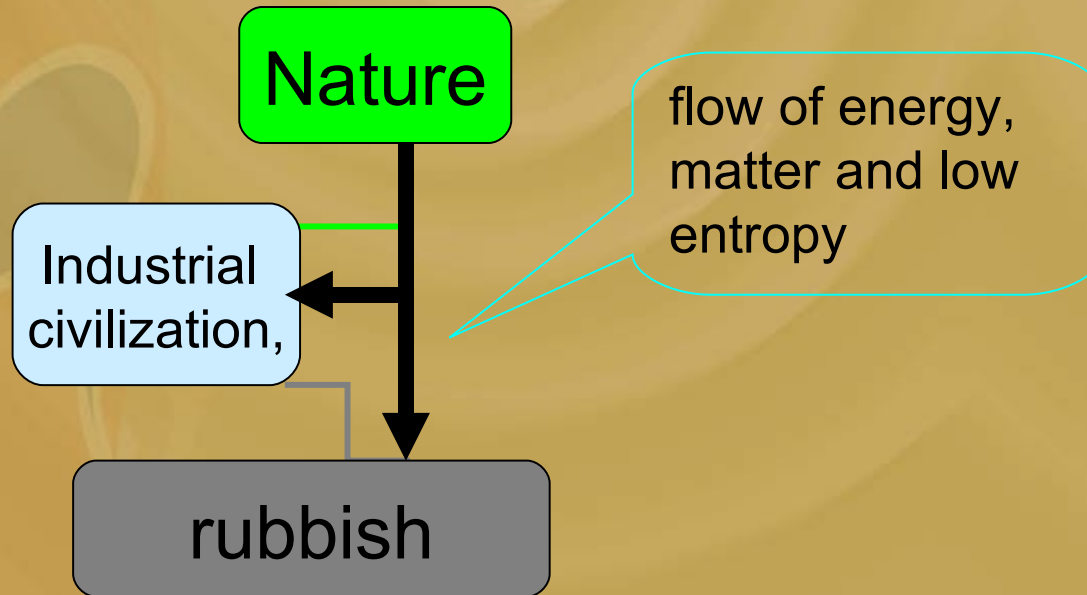
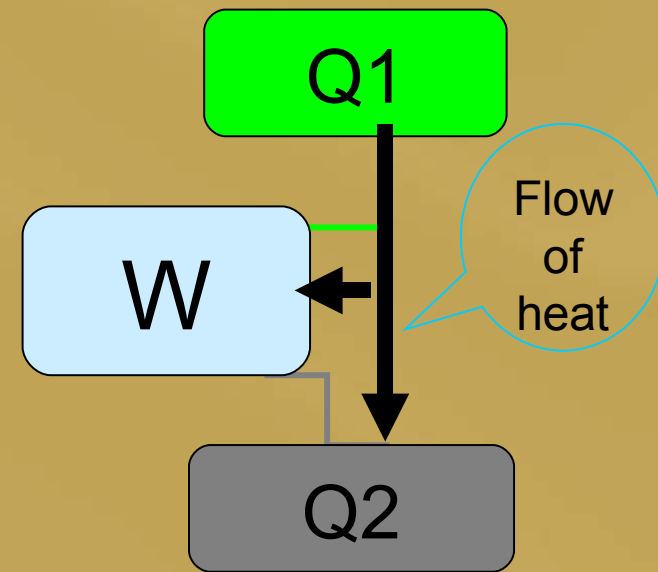


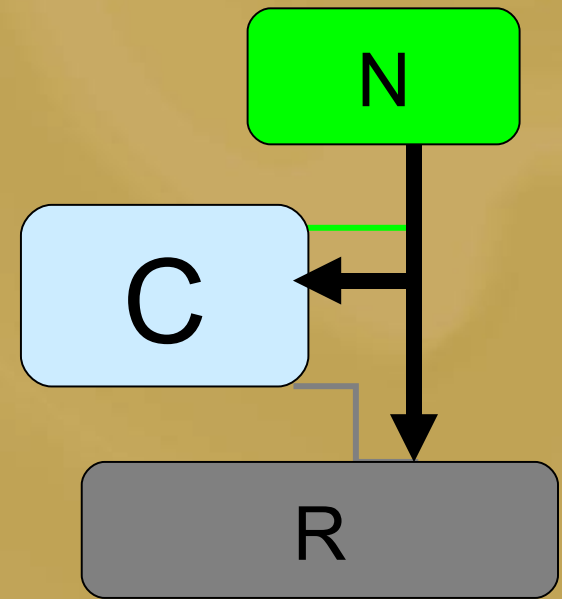
Diagram of a Heat engine

$$W = Q_1 - Q_2$$

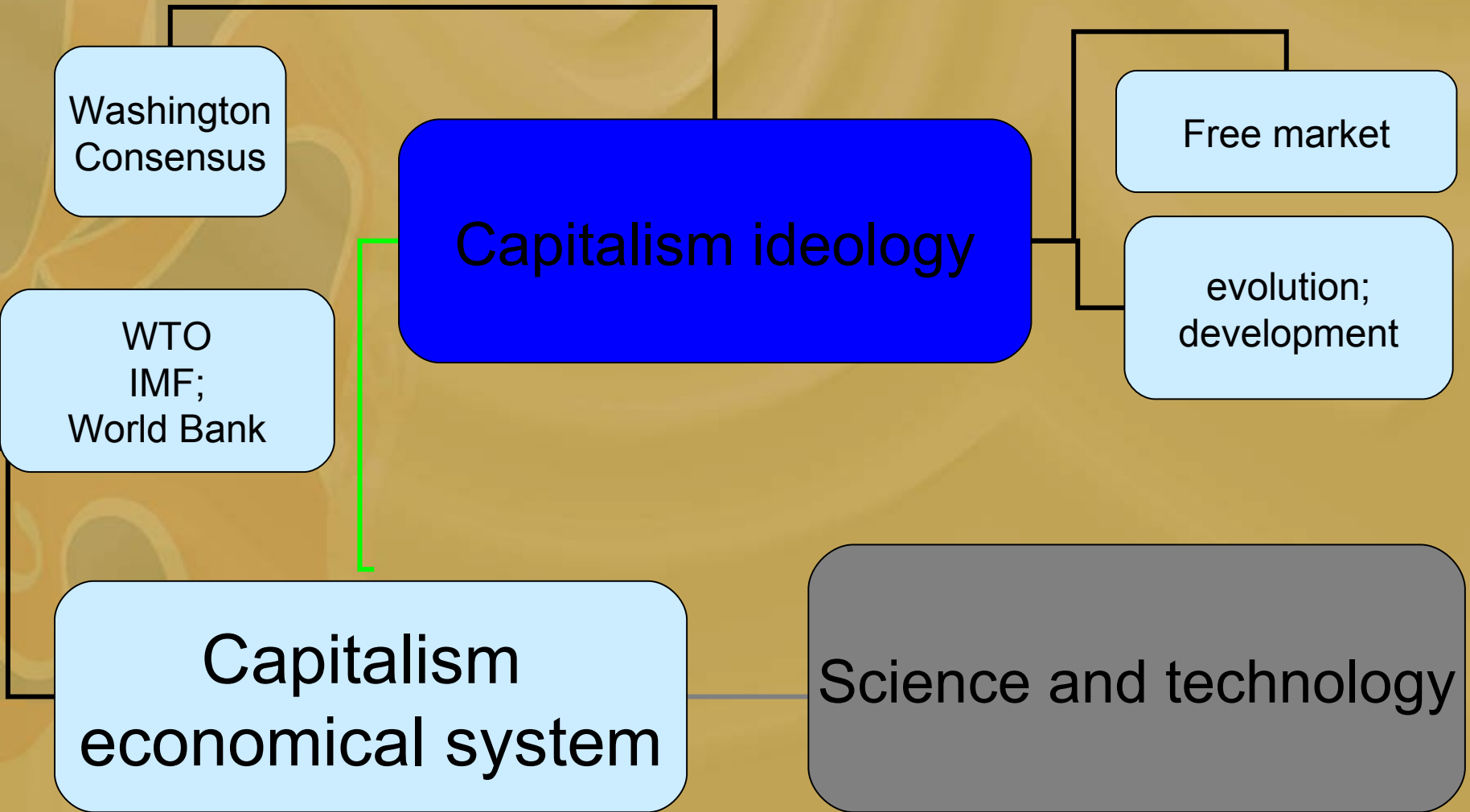


The industrial civilization runs like a heat engine

- ◆ input nature; output the rubbish.
- ◆ The more developing the industrial civilization is, the more power the engine has, and the more quickly it output rubbish.
- ◆ The industrial civilization is built beside its rubbish dump, bigger and bigger.



What is industrial civilization



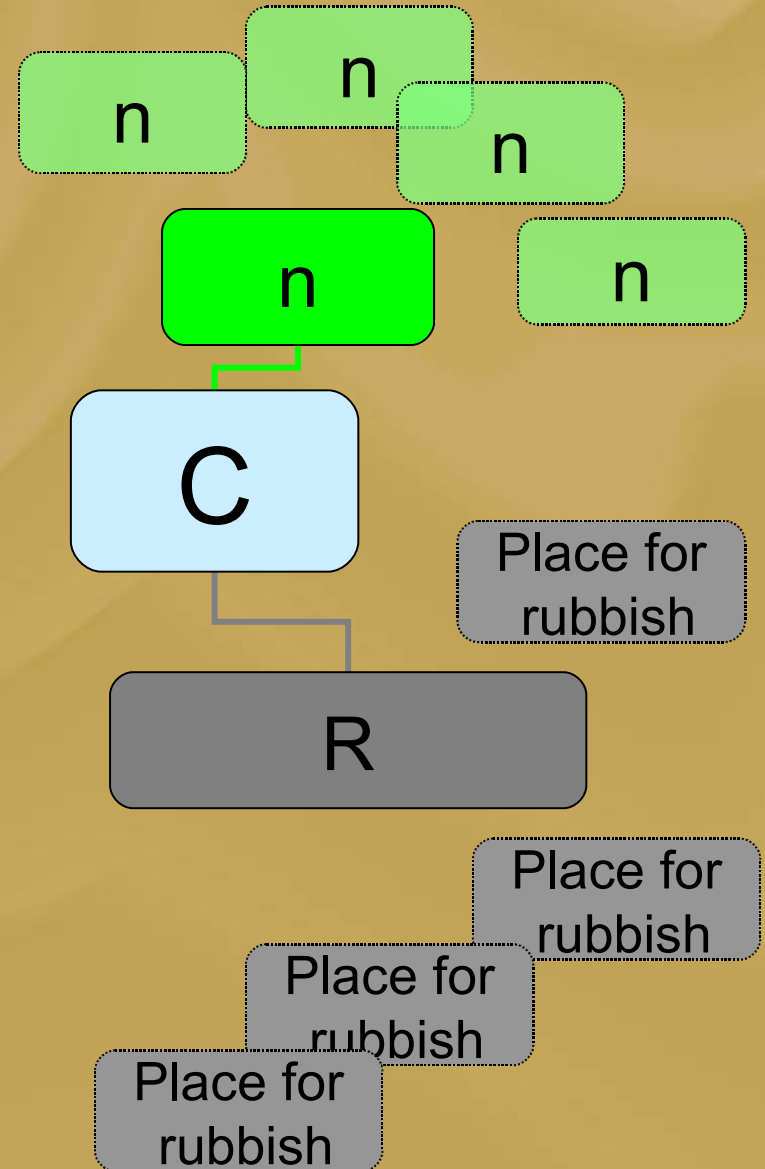
The industrial civilization changed our life fundamentally in two aspect

- ◆ 1, changed the direction of ideal society: from spiritual lift, to material pursue,
- ◆ 2, changed the way of transformation of energy and matter: from a quasi-circle to a open chain.

Classical economics & unlimited earth

- ◆ new source,
- ◆ New business partner
- ◆ New market;
- ◆
- ◆ new land for littering rubbish.

- ◆ The classical economy was based on **the unlimited earth**.



The Age of Limited Earth

- ◆ According to the classical capitalism economics, every player in the free market will benefit from it, that is the so-called enlarging the cake.
- ◆ Now the cake meet its upper limitation.
- ◆ That is the earth itself!
- ◆ I prefer to name the contemporary period of globalized modernization and modernized globalization as **The Age of Limited Earth.**



We have only one earth

- ◆ What is limited is not only the source of the earth,
- ◆ but also the **capacity for containing the rubbish** made by human being.

Lige island(里格村), Lugu lake(泸沽湖),
Yunnan province. October, 2000.



Lige village (里格村)



garbage can in Lige



Rubbish of Lige, February 20, 2004 ,



photoed by Huaer







Lou shui village(落水), nearby Lige. May 21, 2004.

- ◆ In another small village nearby Lige,
- ◆ Garbage truck is working ...



By huaer

Rubbish of Lou shui
village(落水), nearby
Lige. May 21, 2004.



photoed by Huaer





Aixinjueluo Huaer(爱新觉罗·画儿), September 30, 2003



The deepest bottom of the lake can be seen on the surface

- ◆ 2000, 11m
- ◆ 2004, 9 m
- ◆ 1987, 14m

- ◆ No any industry around Lugu lake!
- ◆ It's in the downstream of global industrial civilization



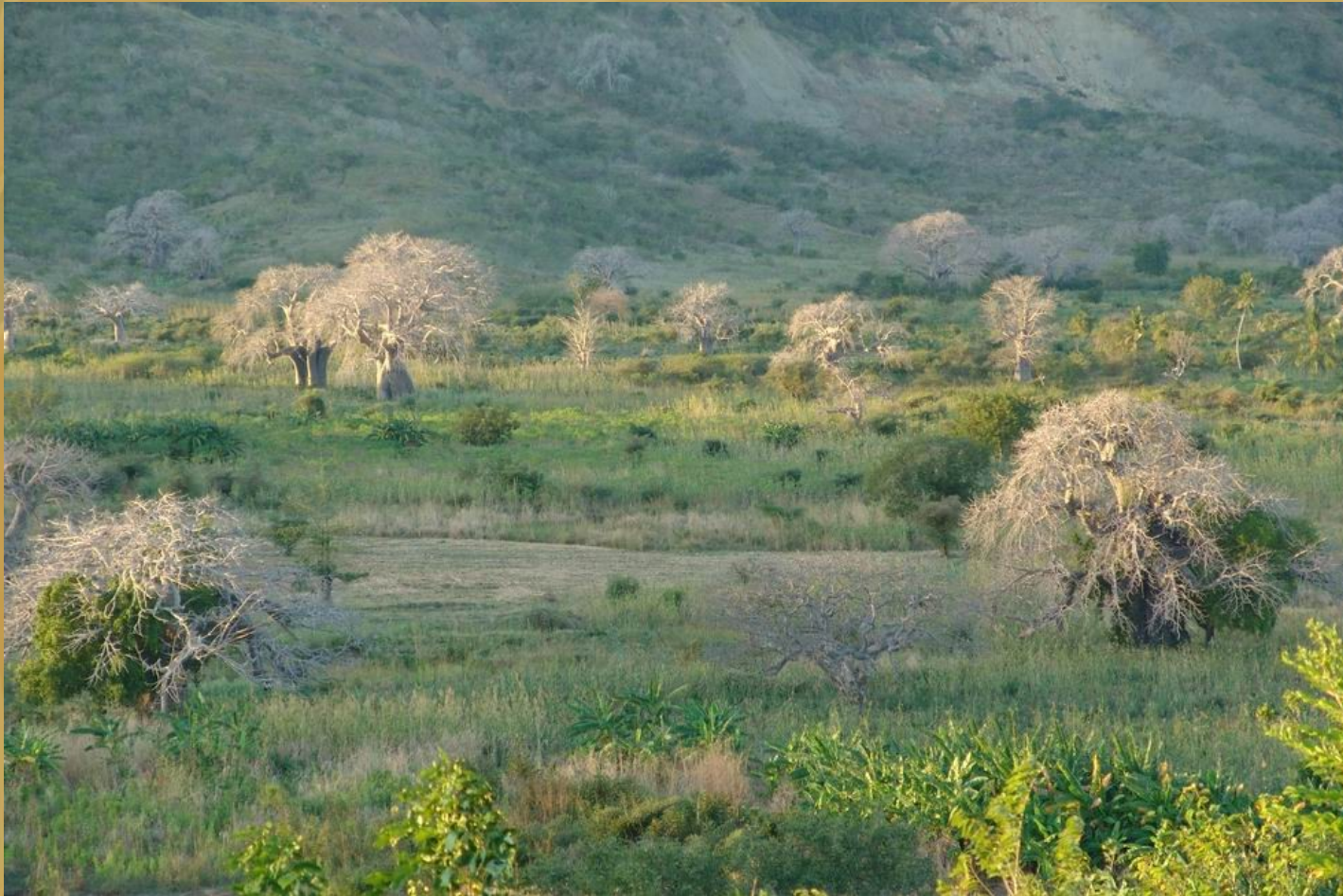
Pemba , Mozambique. July 20, 2004



Same place, seashore



Pemba , Mozambique. July 18, 2004



Just go back some distance



The global transformation of energy and matter is actually a food chain

- ◆ **The sustained modernization in any modernized area is based on:**
- ◆ **1, the continuous input of nature source from the non-modernized and sub-modernized areas all over the earth;**
- ◆ **2, output its rubbish to those areas.**

Rubbish War?

- ◆ I guess that, In the next large scale war, the first aim of the invading side will be **not to rob something** (for example, Helen, or matter and energy) **back**, but **to sent something** (of course, rubbish) **out**.
- ◆ The Kyoto Protocol is a negotiation for distributing of the gaseous rubbish in global scale!

The future world will be made of Rubbish



◆ http://www.vestaldesign.com/blog/wp-content/uploads/uploaded_images/BaselActionNetwork_IMG_4955-753506.jpg

Will new tech be able to solve the rubbish problem?

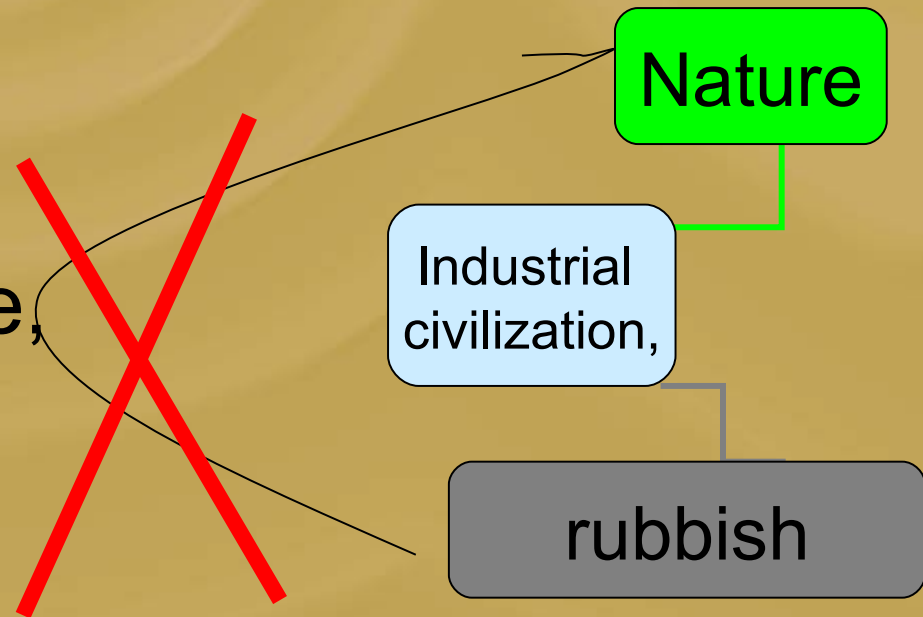


NO!



Physically,

- ◆ If you can transform all rubbish as resource and reinput our civilization machine,
- ◆ Congratulations!
- ◆ you make a perpetual motion machine.



historically,

- ◆ the level of technology (including recycling technology) is higher and higher, while the amount of rubbish human output to nature is bigger and bigger.
- ◆ Rubbish problem, is a incurable disease of industrial civilization.

realistically

- ◆ Sci-tech is embodied in the structure of industrial society, is part of it.
- ◆ Scientists always promise, as people expect, that they will invent a new technology, to solve a problem,
- ◆ while, the problem is just caused by the technology they invented before!

Similarly,

- ◆ Alternative energy can not solve the rubbish problem.
- ◆ Clean energy, renewable energy, ...just like the cycling tech, can only work in a limited extent.
- ◆ At present, they are also a part of the industrial civilization.

- ◆ So, the everlasting developing is impossible;
- ◆ Sustainable is impossible under the structure of industrial civilization

stop!

- ◆ The real question is not:

how to develop,

- ◆ But:

How to stop,

Stop the step of industrial civilization
To find a new style of human civilization,

ecological civilization.

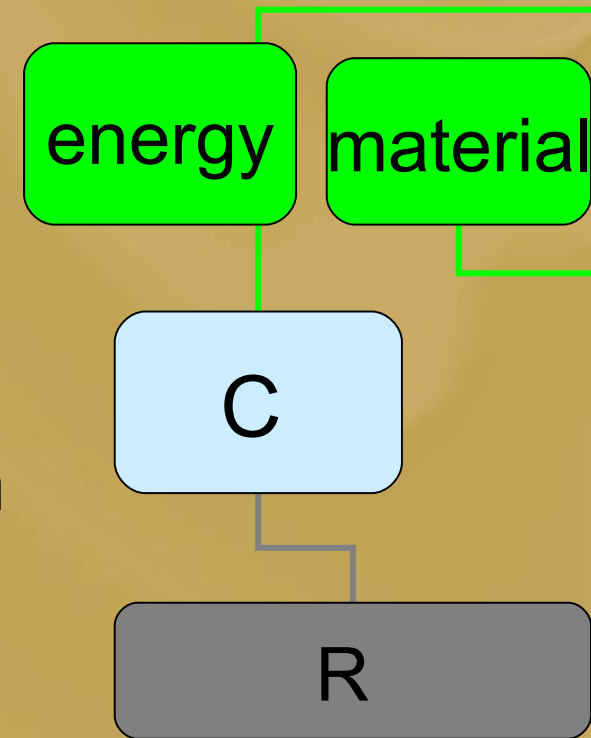
Thank you!



Yun Gang Cave, Shanxi province; October 26, 2003

Rubbish: the most serious problem in the coming future

- ◆ The rubbish problem will surpass the energy problem, the food problem, and so on become the most serious problem in the coming future.
- ◆ Solving of energy problem doesn't means solving of the rubbish problem because of the second law of thermodynamics.
- ◆ Even more, infinite energy will make the rubbish problem more serious.
- ◆ More energy input, more rubbish output.



The critical point of human civilization

- ◆ What is the upper boundary of the amount of energy we human being can use, and beyond which our human civilization will fall apart?
- ◆ What the last critical point we can imagine is that we have used all the solar energy which arrived at our earth.
- ◆ However, we can only make use of a little of this amount of solar energy in practice.

A criterion of sustainable life style

- ◆ A justifying criterion: the amount of energy and matter used in one year by a sustainable way of life in certain area must be less than what can be supplied by the sun and this area in one year.
- ◆ In another words, to use its “local sun” and the sun of today, that is, **one sun**.
- ◆ If someplace use more energy than that, it has to get energy from the other areas and the “past sun” which stored its energy in coal, oil and plants.

We have only one sun!

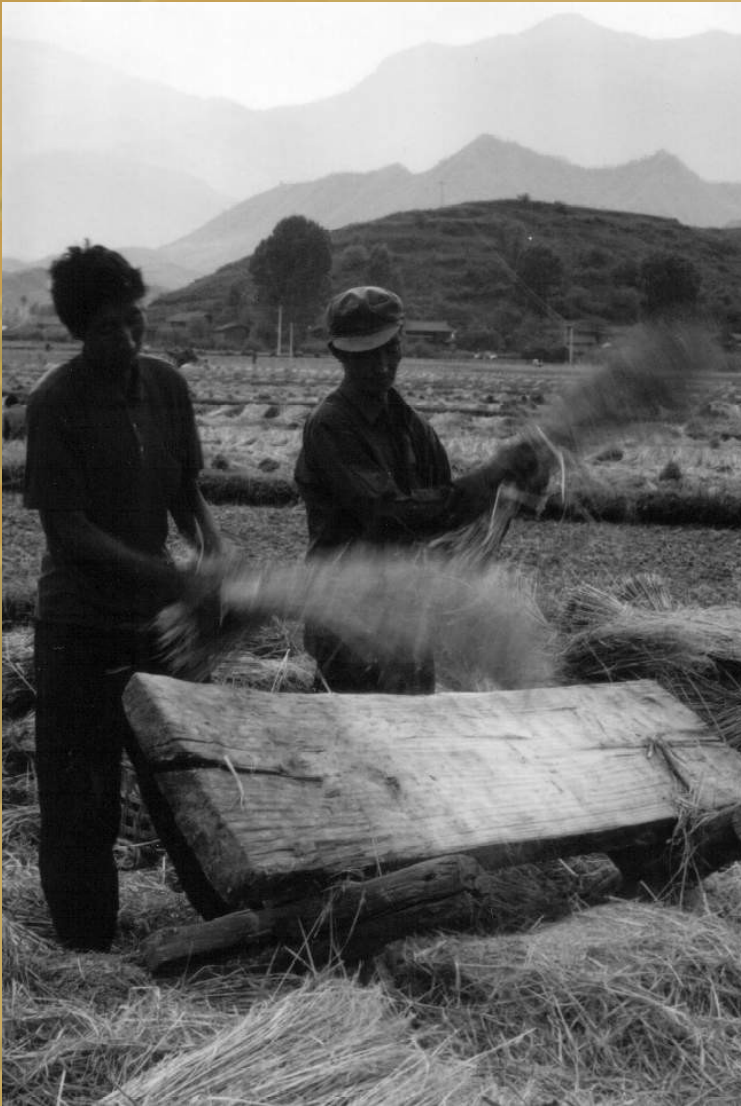


Traditional Way of life

- ◆ The one sun criterion provides a new way to revalue the merit of tradition.
- ◆ A kind of tradition means that such kind of way of life was sustainable!



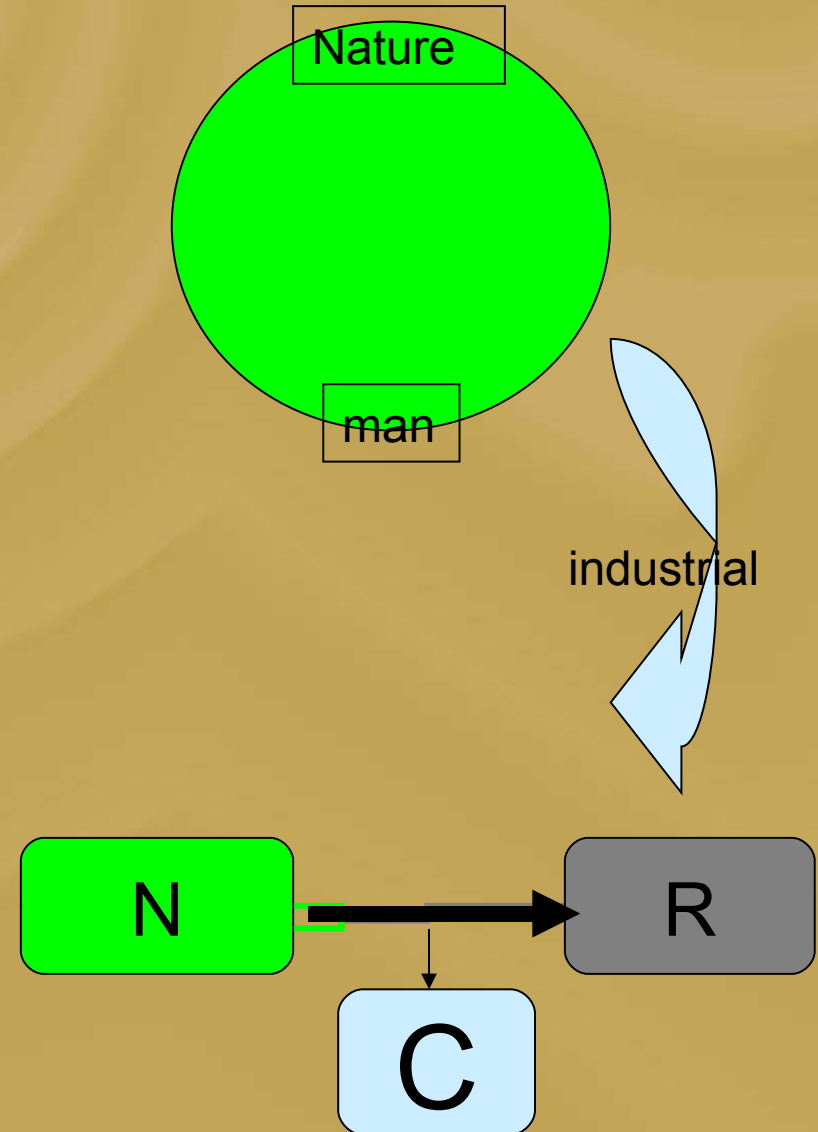
Why there is almost no rubbish in traditional society?



- ◆ Because they just use one sun.
- ◆ Everything in traditional society was coming from dust and will be going back to dust!

The chain of transformation of energy and matter in traditional civilization

- ◆ Quasi-circle!
- ◆ from dust and back to dust!
- ◆ The industrial civilization change the chain from quasi-circle to open links.
- ◆ The modernization caused a global flow of energy and matter!
- ◆ That is globalization.



Some conclusions

- ◆ Industrial civilization changed the way of transformation of energy and matter, from a quasi-circle to an open links.
- ◆ Industrial civilization caused a globalized flow of energy and matter, more and more quickly.
- ◆ **We have only one earth**; the energy and matter of the earth is limited; the capacity to containing the rubbish is also limited.
- ◆ We have stepped into an age of limited earth.
- ◆ **We have only one sun**; we are near to upper limitation of the amount of energy we can used.

- ◆ The sustainable development is impossible.
- ◆ Rubbish will be the serious problem of human being.
- ◆ We need to revalue the merit of traditional civilization.
- ◆ We need to learn **how to live in the only earth by the only sun** from variety of traditional civilizations.
- ◆ And the most important problem is: what kind of life style will make us happy?

Thank you!



Yun Gang Cave, Shanxi province; October 26, 2003

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Human civilization,
A machine which transforming
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Rubbish in solid, liquid and gaseous
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Window-breaking Theory in economics

- ◆ It was put forward by Frédéric Bastiat as a target to criticize.
- ◆ It says that to break a window will stimulate the economy because of every one on the chain of glass making, transporting and selling will have a little more work additionally.



Claude Frédéric Bastiat
(1801 ~ 1850)

Globalization & modernization

- ◆ The first law of thermodynamics

The law of conservation and transformation of energy (and matter)

- ◆ The second law of thermodynamics

The principle of entropy increase