

My Lecture at Today's Symposium (今日の講義)

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Today's contents (今日の内容)

- Introduction (10min.)
(はじめに、10分)
- What are environmental issues? (20min.)
(環境問題ってなに? 20分)
- What is important in waste management and what we can do now? (30min.)
(ごみ処理で大切なことは? 今すぐできることは? 30分)
- What is waste? (30min.)
(ごみってなに? 30分)

Introduction

What kind of place is Toyama? (富山ってどんなところ?)



Population(人口): approx. 1,120,000 people

Introduction

Toyama is not Fujisan!
(富山と富士山は同じではありません!)

富山 (Toyama) is a place but

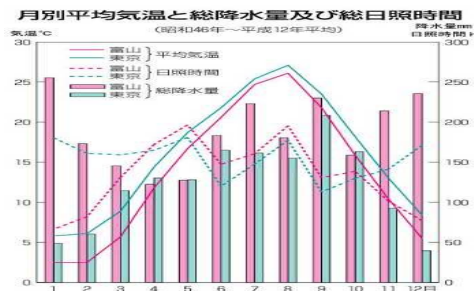
富士山 (Fujisan) is a mountain!



(富山は場所で富士山は山です!)

Introduction

Average temperature by month



Introduction

Toyama has lots of nature.



Japan Alps

Introduction

Toyama has lots of nature.



Paddy Fields

Introduction

Toyama has lots of nature.



Toyama Bay



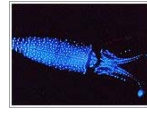
Snow Grouse



Japanese Serow



Yellowtail



Firefly Squid



Tulip

Introduction

What Kind of university is Toyama Prefectural University? (富山県立大学ってどんな大学なの?)



Introduction

Study Areas (専門分野)



Total Number of Students: approx. 1,000 students
(全生徒数:約1000人)

Introduction

What am I? (私は何者なのかな?)

I am an associate professor of Toyama Prefectural University. (富山県立大学助教授)

My major is waste management technology.
(専門は廃棄物処理工学)

My concentration is to develop recycling technology of waste.
(廃棄物のリサイクル技術の開発をしている。)

Introduction

My Laboratory (私の研究室)



Herb Plantation
(ハーブ栽培)



Students in my lab.
(ゼミの学生)

What are environmental issues?

(環境問題ってなに?)

What kinds of environmental issues do you know?
(どんな環境問題を知ってるかな?)

Let me know! (教えて!)



What are environmental issues?

Global Warming (地球温暖化)
Problems on Waste (ごみ問題)
Water Pollution (水質汚染)
Air Pollution (大気汚染)
Deforestation (森林破壊)
Population Expansion (人口増加)
Desertification (沙漠化)
Destruction of O₃ layer (オゾン層の破壊)
and so on. (など..)

What are environmental issues?

There are fundamental environmental issues which we should not forget about.

(我々が忘れてはならない基本的な環境問題がある。)

Many people are dying everyday because of starvation, 8 million people are in malnutrition.
(沢山の人が食べられずに亡くなっている。大体8億人の人が栄養失調である。)

Approx. 14,000-30,000 people are dying everyday because of diseases related to water.
(毎日3万人程が水に関連する病気で亡くなっている。)

What are environmental issues?

There are fundamental environmental issues which we should not forget about.

(我々が忘れてはならない基本的な環境問題がある。)

Some millions of people are dying every year from easily curable diseases because of no treatment.
(毎年数百万人が治療が受けられない為に、簡単に治療できる病気で亡くなっている。)

One sixth of world adult population are illiterate.
(世界の成人の6人に1人が読み書きができない。)

What are environmental issues?

There are fundamental environmental issues which we should not forget about.

(我々が忘れてはならない基本的な環境問題がある。)

Women are not allowed to study. Two third of population in illiteracy are women.
(女性は勉強する機会が与えられない。読み書きができない人の3分の2は女性である。)

Women activity are severely limited.
(女性の行動が極端に制限されている。)

Many people are still in any kinds of conflicts.
(沢山の人がまだ紛争の中にある。)

What are environmental issues?



http://www.3k.co.uk/1/low_world_sfrica/32543.htm



<http://www.unicef.or.jp/siryu/sokahbm>



<http://www.unicef.or.jp/siryu/sokahbm>



<http://www.unicef.or.jp/siryu/sokahbm>

What are environmental issues?

Do not jump to Global Warming, O₃ Layer Depletion, Desertification, and so on if you are asked about environmental issues.
(環境問題と言えはすぐに温暖化などを思い出さないこと。)

We should always remember those fundamental environmental issues, then talk about Global Warming, and so on.
(常にもっと基本的な環境問題のことを認識すべき。)

What is important in waste management and what we can do now?

(ごみ処理で大切なことは？今すぐできることは？)

Waste Generation (ごみの排出量)

Town (都市名)	Population (人口)	Waste treatment, t/day (1日当たりのごみ処理量ton)
Dalian (大連市)	5,572,712	1,740
Guangzhou(広州市)	6,122,016	4,235
Shanghai(上海市)	12,950,000	13,904

What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

Suppose,

Waste treatment/day = Waste generation/day,

**what is
Waste generation/day/person in
each city?**

(1日処理量と1日排出量が同じと仮定して、各都市における1日当たりのごみの排出量は？)

What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

Town (都市名)	Population (人口)	Waste generation, ton/day (1日当たりのごみ処理量ton)
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Let's calculate!! (計算してみよう！)

What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

$$\text{Waste generation (Kg/day/person)} = \frac{\text{Waste generation (Kg/day)}}{\text{Population (persons)}}$$

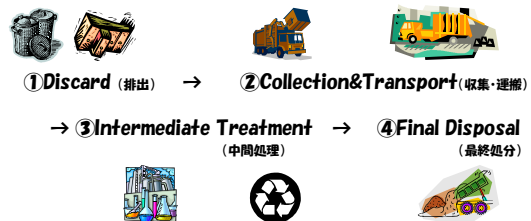
$$\text{Dalian (大連市)} = \frac{1,740,000 \text{ (Kg/day)}}{5,572,712 \text{ (persons)}} = 0.33 \text{ (Kg/day/person)}$$

$$\text{Guangzhou(広州市)} = 0.69 \text{ (Kg/day/person)}$$

$$\text{Shanghai(上海市)} = 1.07 \text{ (Kg/day/person)}$$

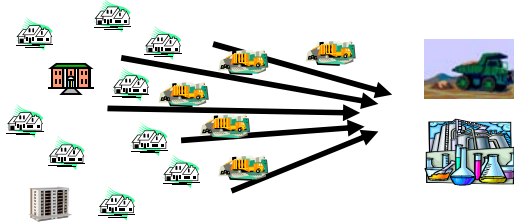
What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

Waste Management Flow (廃棄物処理の流れ)



What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

Importance of Collection&Transport
(収集・運搬の重要性)



What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

We must bring waste to one place in order to treat waste! (ごみを処理するためには、ごみを一つの場所に集める必要がある！)



Effective transport of waste is essential. (効率的なごみの運搬が大切)



What is "effective transport"? (効率的な運搬ってどういうこと？)



Reduce volume of waste, that is, remove air from waste. (ごみの容量を減らすこと、すなわち、ごみから空気を取る)

What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)



Without crushing cans, we need 2 trucks.

(缶をそのまま出すと、トラックが2台必要になる)



With crushing cans, we need just 1 truck.

(缶を潰して出すと、トラックは1台で済む)



What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

What happen if we use 2 trucks instead of 1 truck? (トラックを1台の代わりに2台走らせると、どうなるか？)

- To consume more gas. (より多くの燃料を消費する)
- To cause more air pollution by exhaust gas. (排気ガスにより更なる大気汚染を引き起こす)
- To give more damage to roads. (道路への負担が増える)
- To make more noise. (騒音を増やす)
- To increase labor cost. (人件費がかかる)
- To produce more risk of traffic accident. (交通事故の危険が増える)

and so on.

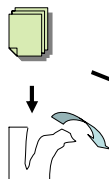
What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

Let's try! (やってみよう！)

Discard papers by three ways. (3つの方法で紙を捨てる！)



Fold it neat
(綺麗に折りたたむ)



Tear it away
(破る)



Make it round like a ball
(丸める)

What is important in waste management and what we can do now?
(ごみ処理で大切なことは？今すぐできることは？)

Which way of discard gave the largest volume of waste?

(どの捨て方の方法が最も大きく膨れた？)







To remove air from waste is very important for effective transport.

(ごみの効率的な運搬には、廃棄物から空気を取ることが重要)

What is waste? (ごみってなに?)

Waste is something you don't need.

-  Your friend's bicycle is very shabby, but your friend likes it very much. (友達のお自転車はボロボロだけど、友達はそれをめちゃくちゃ気に入ってる) **Not a Waste**
-  Your grandpa gave you a new Game Boy, but you came not to like and need it soon because you could never win. (おじいちゃんがゲームボーイをくれたけど、全然勝てないから直ぐ嫌になりそうだ) **A Waste**
-  I bought the cake in the fridge 1 week ago, but I am going to eat because I am too hungry. (お腹が空いて死にそうなので、一週間前のケーキをたべよう) **Not a Waste**
-  Tom gave me Sushi, but I cannot eat it because I just ate too much dinner. (トムが寿司をくれたけど、今、腹いっぱいお腹を食ったので、寿司は食べられない) **A Waste**

What is waste? (ごみってなに?)

Something becomes a waste or not totally depends on your interest, feeling, and thinking. (その物がごみになるか否かはいは、本人の興味、感情、考え方に左右される)

It does not fully depend on physical and chemical changes in material quality. (その物の質が物理的に化学的に変わったからごみになるだけではない)

Somebody may need your waste. Your waste may not be other's waste, and vice versa. (誰かは君のごみを必要かもしれない、君のごみは他の人にとってはごみではないかもしれない、その逆の場合もある)

➡ **Therefore, recycling of waste is important for our earth.** (だから、我々の地球にとってはリサイクルは大切である)

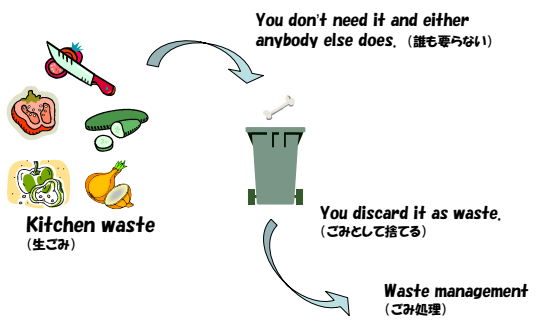
What is waste? (ごみってなに?)

You don't need it and either anybody else does. (誰も要らない)

Kitchen waste (生ごみ)

You discard it as waste. (ごみとして捨てる)

Waste management (ごみ処理)




What is waste? (ごみってなに?)

You discard it as waste. (ごみとして捨てる)

Waste management (ごみ処理)

Microorganisms in soil like and need your kitchen waste!! Don't discard it!!
(土壌微生物が君の生ごみを欲しがっている! 捨てないで!)



What is waste? (ごみってなに?)

Please give me more nutrients. Microbes. (もっと栄養を頂戴よ、微生物さん)

We are also very hungry. (僕達もお腹空いてるんだよ)

Kitchen waste

Yahoo!! We have foods now!! (Yahooー! 食べ物が増えたぞ!!)


I am getting better, thanks. (だんだんよくなってます)

We are very well and have many friends now!! (元気があって、仲間も増えたぞ!!)

I am happy, too! (僕も幸せだ!)

We are happy! (幸せだなあ!)

We can give you more nutrients now! (今から栄養が上げられるよ!)



What is waste? (ごみってなに?)

Let's recycle your waste!!
(ごみをリサイクルしよう!)

Your waste may not waste for others! (君のごみはごみじゃないかも!)

Somebody or microorganisms may need your waste! (誰かにとっては必要なもの!)

Waste is resource! (ごみは資源だよ!)

Thank you for your attention!

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