

A Story About Paper Yoshizumi Ishihara (Actor, Weather Forecaster)



PROFILE

Yoshizumi Ishihara

Born in Kanagawa prefecture in 1962. Graduated from Keio University. Debuted as an actor in 1982. After that he was active in various fields such as theater, movies, and TV dramas. He gained the license of a weather forecaster in 1997.

The book he wrote about the Ishihara family in 2001 became a best seller.

His father is a prominent writer and politician Shintaro Ishihara.



When Mr. Ishihara was young, he felt the dignity of writing on the manuscript paper on the marble desk.

To be sustainable, society needs an “affinity for science”.

As an actor and a weather forecaster, Yoshizumi Ishihara is active in television. He tells us about his father, Ishihara Shintaro's exclusive writing paper, "Ishihara Note", and about sustainable society from the view of a professional weather forecaster.

I remember the first time I saw "Ishihara's Note", the personal manuscript writing paper of my father, famous writer Shintaro Ishihara.

When I was a child, there was one room in our home that I was not allowed to enter - my father's study. One day, however, when my father had gone out, I went to the study door, slowly opened it, and dared to step inside. I looked in awe at my father's desk. It was a large desk, about the length of a tatami mat and made of marble. On the desk, there was a pen stand, an ink crucible, an ink eraser, and a paperweight that had been sent from my grandfather. In the middle of it all was his pad of manuscript paper made to his own specification, ready for him to write. This was "Ishihara Note". Even as a child, I could sense an aura of dignity emanating from the very paper itself.

Much later in life I wrote an essay and was fortunate enough to see it become a best-seller. To celebrate, I bought myself a large desk and also made my own manuscript paper. I didn't imitate my father, but I think that I had absorbed a consciousness that "paper" was an important element in the Ishihara family business.

To be honest though, neither I nor my father have used the manuscript paper much. Word processors are TOO convenient! However, recently I have started using paper again, because I realized its importance. If you write letters and sentences on paper, there is a quality of permanence. Also, if manuscripts on paper are hand-written, there is something of the author visible on the page.

I like to cherish the task of writing each character

on paper. I'm sure paper will remain in use in the future, despite the advances of the computer-based virtual world.

In 2008, the G8's Toyako Summit had a big effect on raising the public's awareness too. People became interested in using resources carefully. The concept of 3R (Reduce, Reuse, Reduction) was introduced in schools and then wider society. Sustainability was encouraged by educating people to moderate their demands for resources. On the supply side, however, we need an 'affinity for science'.

If Japan had continued to live as we did in the Edo period, our country could support perhaps 30 million people. Thanks to science and technology, it has become a country where 120 million people can live.

Nippon Paper Industries is working on a research project with other companies to produce plastics from the wood resources. It can contribute to the transition of society from oil-based and CO₂-emitting, to one based on renewable carbon-free resources.

In the future, I hope that as a result of such progress in science and technology, we will live comfortably without imposing a burden on the environment. At that time, our consumer side also has to support such new science and technology. People do not need to be scientific experts but they do need to have an "affinity for science" so that they can follow the guidance science gives us, and benefit from advances in technology. Our generation has concerned itself with comfort. From now on, I would like to think about what we can leave for the next generation. It is important to do what we can.

TOPICS

"Marunuma Kogen Plantation 2015"

The Nippon Paper Group held the "Marunuma Kogen Tree Plantation 2015" on Saturday, May 23rd.

On a fresh sunny spring day, about 100 people participated in the planting of about 1,000 seedlings of 5 different native species on the slope of the Maruna Plateau (inside the company's Suganuma forest) located in the Nikko National Park.

The Nippon Paper Group will continue to plant trees and contribute to the creation of richer forests.



EDITOR'S NOTE

Nippon Paper Group's new slogan is "Shaping the future with trees".

In this issue we have tried to introduce the part of it. In Mr. Ishihara's interview, he states the necessity "to supply environmentally friendly products". In order to meet this need, we are very much looking forward to realizing this project in which the industry collaborates with government and academia to create various plastics from wood.

(Keiko Fujita)

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Shaping the future with trees

Rising to the challenge of making sustainable plastics from wood

We are surrounded by plastics made from petroleum.

However, petroleum is a limited natural resource. What will we do when it can no longer be used as a raw material?

Research is now progressing to replace petroleum in making plastics with wood which is a renewable resource.

In this issue, we will look at projects now in development in many different industries and across the boundaries of industry, government, and academia.



There are various problems with the continued use of petroleum as a raw material for plastics and other chemicals, such as concerns about resource depletion and the issue of impact on climate change. Because of this, the chemical industry needs environmentally conscious sustainable raw materials to replace petroleum. Wood, being a non-edible biomass*,

is attracting attention. Today, throughout Japan, collaborative projects between industry, government and academia are underway to create wood-based chemical products to substitute for petroleum.

An important characteristic of such projects is that the chemical company and paper company work together, going beyond the boundaries

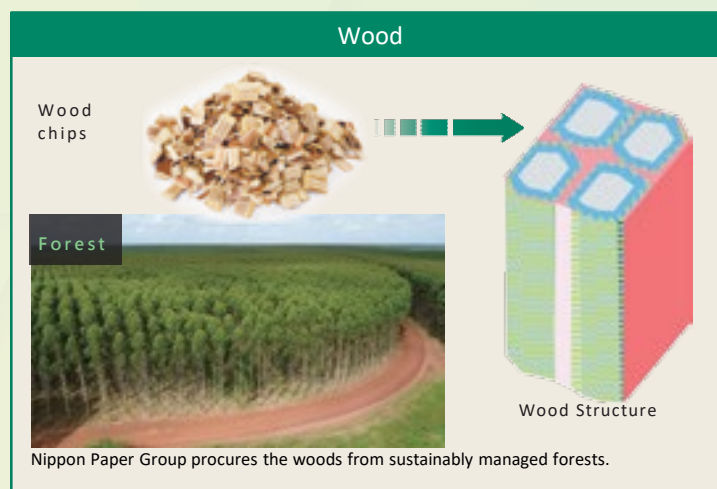
of the industry. We aim to develop integrated manufacturing processes from raw materials to products by combining our own forestry and wood component processing technologies with the chemical engineering technology of chemical companies.

** The term refers to biomass which is a renewable biological resource and does not compete with food.*

The process of creating raw materials for plastic etc. from wood

Raw Material Procurement

Wood consists of three major components. Cellulose (blue) is a fiber component which makes up about half of the wood material. The remaining hemicellulose (green) and lignin (red) are bonding fibers and the filling between fibers.



How does this compare with conventional biomass?

We are trying to realize the potential cost benefit of wood, by reducing the cost while providing stable supplies in large quantities to users of non-edible biomass as raw materials. There is potential for using all three major components of wood as raw materials for chemicals, but, it is difficult to separate wood components. Development of efficient new pretreatment technology is required.

Pretreatment (separation of components)

The three major components of the wood are separated, and can be used for making plastics and other chemicals.

Lignin

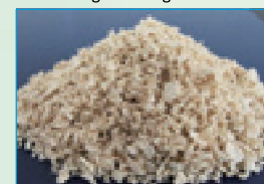
Because of its complex structure, lignin is the most difficult to separate and use. At present, a large part of lignin is burnt for energy.



e.g. Solid Lignin

Cellulose

Cellulose is the main component of paper and contains the same kind of sugar as starch etc.



e.g. Cellulose Fiber

Hemicellulose

Hemicellulose contains several kinds of sugar which vary, depending on tree species.



e.g. Hemicellulose Liquid

Chemical Conversion

Chemical processing converts wood components into raw materials for plastics etc.

Raw materials for plastics And other Chemicals

By mixing or reacting the separated three components with other raw materials, we make raw materials for such as plastics.

Among them, we will make chemical raw materials targeting high-performance products such as engineering plastics which are high in strength, heat resistance, chemical resistance, etc.

We are also thinking of making new plastics by using wood components which could not be obtained from petroleum.

Powder

Solid state

Liquid

We expect end-users to increase in number and scope



Demand for bio-based plastics for products such as car parts is increasing year by year. Until now, most of the bio-plastics used have been derived from edible resources. Development of bio-plastics etc. from non-edible biomass, such as wood, is socially popular and desirable.

Nippon Paper Industries' role is in the development of raw material procurement and pretreatment technology

Technological development of the process for manufacturing chemicals derived from non-edible plant resources※

Industry, government and academia collaborate on the project

The following organizations are participating in this project together. Asahi Glass Co., Ltd., Ube Industries Ltd., Sumitomo Bakelite Co., Ltd., Taiyo Nippon Sanso Co., Ltd., Teijin Limited, Toray Industries, Inc., Niigata Bio Research Park Co., Ltd., Japan Chemical Machinery Manufacturing Co., Ltd., Nippon Kayaku Co., Ltd., Nippon Paper Industries Co., Ltd., Mitsui Chemicals, Inc., Mitsubishi Chemical Corporation, Unitika Co., Ltd., National Institute of Advanced Industrial Science and Technology, National Research and Development Corporation Forestry Research Institute, Kyoto University, The University of Tokyo, Niigata Pharmaceutical University

As of June 2015

※NEDO(New Energy and Industrial Technology Development Organization)project. NEDO is Japan's largest public management organization promoting research and development in industrial, energy and environmental technologies.

Project Summary

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Sustainable Production Activities

To make chemicals from wood makes sense even considering the time scale involved. Both the time for growing trees and the period for developing chemicals are measured in years, so it is easier to balance production and consumption. Since the paper industry already has a supply chain of resources in Japan, we were ready to cooperate with the chemical industry in creating something of high added value. Based on the distribution of paper mills across Japan, we can also use supplies of unused wood materials in the local areas and make various chemicals based on the three main components of wood in the same place. This also leads to the revitalization of the area, and I think that it will be a catalyst for contributing to comprehensive industrial development throughout Japan.

As for the serious social issues we face, human beings have experienced various crises and have resolved with the power of technology such as in the agricultural and the industrial revolutions. Because of this, I believe that the problem of sustainability, perhaps our biggest challenge yet, may also be solved with the help of technology in the future.

Voice of Project Leader

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Project Leader
Kyoto University

Kazuhiro Mae
Professor

The work of Nippon Paper Industries Aiming for further use of biomass

With our Group know-how, through this project we will try to advance further.

Within the project, our company is responsible for developing the technology to separate the three wood components. It's difficult, because the component quality requirements for chemicals differ from those for paper, but we believe that it this technology is key to the advanced use of wood in the future.

Cooperation with other participating organizations is another project benefit. This would be the world's first large-scale collaboration project for using wood-based chemicals. We would love to achieve that.

Voice of Project Member

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