万博エコマップ

EXPO ECO MAP

愛・地球博
EXPO 2005 AICHI JAPAN

Self Eco Tour
EXPO 2005 AICHI JAPAN ECO TOUR
〈Guide to EXPO Site〉

●Japan Zone

The Japan Zone powerfully reveals the role of Japan in contributing to the global age while at the same time introducing Japanese culture in a comprehensive manner.


Japan Pavilion Nagakute


Chubu Community for Millennial Symbiosis


Aichi Pavilion Nagakute


Nagoya City "Earth Tower"

Guide to Environmentally Conscious Facilities

Japan Pavilion Nagakute	A01	Clustered Column from Thinned Wood
Japan Pavilion Nagakute	A02	Biodegradable Plastic Exterior Wall
Japan Pavilion Nagakute	A03	External Walls Made from Kokumazasa
Japan Pavilion Nagakute	A04	Bamboo Cage
Japan Pavilion Nagakute	A05	Roof Made of Photocatalytic Tiles
Aichi Pavilion Nagakute	A06	Wind Power Generation(From Chita City)
Chubu Community for Millennial Symbiosis	A07	Wooden-Plastic Gears
Nagoya City "Earth Tower"	A08	"Ongu" Driven by the Power of Nature
Chubu Community for Millennial Symbiosis	A09	"Lignin" - Recycle Technology of Wood Materials
Nagoya City "Earth Tower"	A10	Reduction of Cooling Load by Photocatalytic Coating, Water Curtain and Mist

●Corporate Pavilion Zone A

This area is designed to encourage visitors to experience the wonders and excitement of the latest technology.


JR Central Pavilion: Invitation to the Ultimate Surface Transit System


Wonder Circus-Electric Power Pavilion


JAMA Wonder Wheel Pavilion


Mitsubishi Pavilion

Guide to Environmentally Conscious Facilities

Wonder Circus-Electric Power Pavilion	D01	Utilization of Driftwood Chips as Roadbed Material
Wonder Circus-Electric Power Pavilion	D02	Recycling Jellyfish and Shellfish that Drift Ashore at the Intakes of Thermal Power Stations
Wonder Circus-Electric Power Pavilion	D03	Photovoltaic Power Generation
Wonder Circus-Electric Power Pavilion	D04	Wind Power Generation
Mitsubishi Pavilion	D05	Recycled Materials for External Wall
Mitsubishi Pavilion	D06	Wall Greening
JR Central Pavilion: Invitation to the Ultimate Surface Transit System	D07	Photocalytic Tent
Wonder Circus-Electric Power Pavilion	D08	Dry Mist
Mitsubishi Pavilion	D09	Recycling Gum Trees for Chairs

●Central Zone

The Central Zone is located at the center of the EXPO site, and surrounded by a wide lawn area, carp pond and large facilities, to provide a venue for interaction and exchange between visitors.


Global House


Rotary Center


Bio Lung


EXPO Plaza

Guide to Environmentally Conscious Facilities

Global House	B01	Fuel Cell Decorated with Ornaments
EXPO Plaza	B02	Solar Cell and Wind Power Generation
EXPO Plaza	B03	Bio Lung
EXPO Plaza	B04	Aggregation of Soil by Glass Cullet

●Seto Area

The Seto Area is the origin of EXPO 2005 where visitors can take the time to come in contact with nature and each other. This is a symbol zone that brings to life the theme of "Nature's Wisdom" while paying the utmost consideration to preserving the natural environment.

Guide to Environmentally Conscious Facilities

Japan Pavilion Seto	H01	Wind Tower (Solar Chimney) and Air-Conditioning System Using Soil Heat
Seto Gate	H02	Hydrogen Supply Facility
Seto Terminal	H03	Wood Chip Paving
	H04	Village Nature School
Aichi Pavilion Seto	H05	Reusing Wood Building Materials


Welcome House

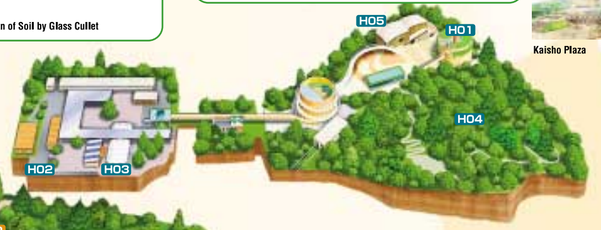

Civic Pavilion


Aichi Pavilion Seto


Japan Pavilion Seto


Kaisho Plaza


Village Nature School



●Corporate Pavilion Zone B

This area is designed to encourage visitors to experience the wonders and excitement of the latest technology.

Guide to Environmentally Conscious Facilities

Mitsui-Toshiba Pavilion	E01	Air-Conditioning Structure by Aqua Wall
Hitachi Group Pavilion	E02	Double-Sided Solar Panels
Toyota Group Pavilion	E03	Wind Power Generation
Gas Pavilion	E04	Roof Greening


Toyota Group Pavilion


Gas Pavilion


Mitsui-Toshiba Pavilion


Hitachi Group Pavilion


Mountain of Dreams

●Forest Experience Zone

"Nature's Wisdom" and the intimate relationship between nature and humanity are kept as much as possible in its natural form, allowing visitors to experience the wonders of nature.

Guide to Environmentally Conscious Facilities

Trail	F01	Wood Chip Paving
Forest Visitor Center	F02	ECO LINK by Ministry of the Environment
	F03	Nature School Forest
	F04	Reducing Ambient Temperature by Mist


Nature School Forest
ECO LINK


Satsuki and Mei's House

It is not possible to go through from here to Satsuki and Mei's House.This is the experience program course for the Nature School Forest.

●Interactive Fun Zone

This zone provides opportunities for visitors to enjoy learning about various problems regarding the environment and peace through exchanges and play with a wide range of people.

Guide to Environmentally Conscious Facilities

NGO Global Village	CO1	Building with Bamboo and Tea Trees
Wanpaku Treasure Island	CO2	Paper Made from Bananas Stems
NGO Global Village	CO3	Organic Garden

Growing Village

Wanpaku Treasure Island / Robot Station

Morizo & Kiccoro Exhibition Center

NGO Global Village

●Global Common

The Global Common is composed of six areas, each of which represents its own continent. Pavilions of all sizes present the theme of "EXPO 2005" in their unique way.

Guide to Environmentally Conscious Facilities

Global Common 5 (NEDO)	G04	New Energy Facility
Global Common 4 (Rest Stop)	G05	Reducing Cooling Load by Photocatalyst
Global Common 3 (Italy Pavilion)	G06	Floor Made of Waste Mirror Glass
Global Common 4 (Portugal Pavilion)	G07	100% Natural Cork without Tree Trimming
Global Common 5 (NEDO)	G08	Solar Array Panel
Global Common 6 (Malaysia Pavilion)	G09	Effective Utilization of Oil Palm Trees to Eliminate Waste
Global Common 5 (Africa Pavilion / Ghana)	G10	Greening Semiarid Areas by Biomass Boards

Global Common 1

Global Common 2

Global Common 3

Global Common 4

Global Common 5

Global Common 6

●Global Loop

The Global Loop is designed as the main visitor route in the Nagakute Area. Built as a horizontal walkway above the area, it allows visitors to almost circle the site, from one Global Common to another, covering approximately 2.6 km in distance and 21m in width. Its eco-friendly, barrier-free structure with no steps provides a stage where officially participating countries and international organizations gather to achieve "Global Exchange" beyond the barriers of country and culture.

Guide to Environmentally Conscious Facilities

Global Loop	G01	Global Loop Base Materials
Global Loop	G02	Benches Made from Thinned Wood
Global Loop	G03	Dry Mist from Tents

万博エコマップ

EXPO ECO MAP

Let's learn how to tackle issues related to nature and environmental conservation at EXPO 2005!

English Edition

Self Eco Tour
EXPO 2005 AICHI JAPAN ECO TOUR

愛・地球博
EXPO 2005 AICHI JAPAN

This ECO MAP has been created with support from advertisement/promotion of public lottery.

Profits from Public Lotteries Contribute to Urban Development.

クーちゃん
Ku-chan

Japan Lottery Association Supports the 2005 World Exposition, Aichi.

Duration: 25 March ▶ 25 September, 2005 (total of 185 days)

The following environmental considerations were taken into account in the creation of this pamphlet.

Editing, Prepress and Platemaking

Photocomposing, camera-ready proofs, and typesetting during editing, prepress, and platemaking done digitally
After DTP (Desk Top Publishing), the information was directly transferred to aluminum plates (printing plates) using CTP (Computer To Plate) technology. By doing this, we avoided the bromides, paper, film, the developer and fixer used for the film, all used for conventional typesetting. This resulted in a printing process with a lower environmental impact.

Printing

Waterless printing which uses no dampening solution was employed. The isopropyl alcohol used in dampening solutions used in water-based printing was not used. In addition, recycled paper was used for environmental reasons. The ink was a VOC-free waterless printing ink using soy-based solvents instead of petroleum-based solvents. The environment is a consideration even in the materials and technology involved - namely paper, ink, and printing.

Waterless Printing
This is a method of lithography that uses no dampening solution. Because special silicone rubber is used as an ink repelling substance in non-printed areas, even if ink is applied to the entire plate, ink only adheres to the printed areas, and no dampening solution is required. On the other hand, in water-based (conventional) printing, making use of the mutually repelling qualities of oil and water, non-printed areas are made hydrophilic and printed areas are made oleophilic. Then, the water and ink is applied in turn to the plate, and printing is carried out. However, the dampening solution used in this method contains organic compounds such as alkali developer and IPA (isopropyl alcohol), In waterless printing, there is no need for dampening solution containing organic compounds, so no volatile organic compounds are released to the atmosphere during printing, making it an environmentally appropriate choice.

Recycled Paper Mark
Recycled paper is used with the purpose of promoting the use of products with waste paper and increasing the demand for waste paper,. However, it is unknown exactly how much waste paper is used. For this reason, so that the waste paper content can be understood in a glance, we have incorporated the "Recycled paper mark" that displays the content of waste paper in products with waste paper. By doing so, the awareness of the consumer with respect to environmental conservation is increased, and the use of products that contain waste paper is promoted, and we are avoiding the work-scale destruction degradation of forests.
The paper used for this document is 70% post-consumer waste paper.

古紙配合率70%
70% Waste Paper Content

Soy Ink
Meets or exceeds the level of ink containing soy oil recommended by ASA (the American Soybean Association), and it has received the "Contains Soy Oil" soy seal certification. Part of the petroleum-based solvents used in the ink has been replaced with soy oil, and the release of organic compounds to the environment is minimal. After disposal, it breaks down easily, and is well suited to bleaching during recycling. Printed matter using this ink is able to display the "Printed with Soy Ink" soy seal.

PRINTED WITH SOY INK

VOC (Volatile Organic Compound) Free
VOCs are volatile organic compounds. There is concern that they could react with ultraviolet rays in the presence of nitrogen oxide compounds, and turn into photochemical oxidants. Non-VOC inks are made of almost 100% soy oil ink (vegetable-based ink). Because they are made of vegetable oil, there is no volatilization of organic compounds to the environment. The "VOC-Free" symbol can be displayed on printed matter when ink with a VOC content of 1% has been used.

VOC FREE

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EXPO 2005 AICHI JAPAN ECO TOUR

環境省
Ministry of the Environment

EXPO 2005 AICHI JAPAN

2005.6

Introduction of Environmentally Conscious Facilities and Activities

Japan Zone

A01 Clustered column from Thinned Wood (Japan Pavilion Nagakute)

Thinning the forests is necessary for their conservation. However, thinned wood has seldom been used as building material because of its small diameter, shortness and number of knots. The "clustered column" exhibited here are made from such thinned wood.
The clustered columns are composed of a total of nine short and long logs of thinned wood, with a flower-patterned cross-section.

A02 Biodegradable Plastic Exterior Wall (Japan Pavilion Nagakute) *

These walls are made of starch like field corn and waste food. They are produced in transparent form, and fitted over wooden frames with foam cushioning materials filled at the inner side to provide heat insulation. In addition, they allow entry of external light through gaps in the cushioning materials, resulting in reduction of indoor lighting energy during daylight hours.

A03 External Walls Made from Kokumazasa (Japan Pavilion Nagakute)

Kokumazasa belongs to the Gramineae family, like bamboo. Panel-type seedbeds are installed on external walls equipped with automatic watering devices. Plant leaves provide transpiration effect, and when their surroundings are cooled, the temperature of the external walls can drop by approximately 7°C.

A04 Bamboo Cage (Japan Pavilion Nagakute)

Bamboo mesh provides protection against the sun and creates spaces of leafy shade inside the building, resulting in reduced air-conditioning load. The bamboo cage is an experiment of effective utilization of over-growing bamboo.
A total of 23,000 bamboo trees are used for this cage.

A05 Roof Made of Photocatalytic Tiles (Japan Pavilion Nagakute) *

The roof is made of steel sheets coated with titanium oxide. By utilizing hydrophilicity which is a feature of photocatalyst, water flows from the top of the roof. As the water spreads over the roof surface and evaporates, it is cooled down resulting in reduced air-conditioning load.

A06 Wind Power Generation (Aichi Pavilion Nagakute / Aichi Pavilion Seto) *

Thanks to the utilization of the "Green Power Certification System", the entire electricity consumed during the EXPO is supplied by wind power energy generated by two wind power generation facilities in Aichi Prefecture (Tahara City, Chita City).

A07 Wooden-Plastic Gears (Chubu Community for Millennial Symbiosis)

Chips of wood are used for these gears. After high-temperature heat treatment, the chips are dried and press-molded to have plastic-like strength. Wood chips which have conventionally been disposed of by incineration are recycled. When they age, they can be pulverized for reuse or returned to the soil.

A08 "Ongu" Driven by the Power of Nature (Nagoya City "Earth Tower")

"Ongu" is a rotating musical instrument powered by natural elements like wind and sunlight to hit the notes. The play speed changes according to the strength of the wind. It can also be played by turning it manually, when there is no wind. This facility is designed for visitors to experience natural energy.

A09 "Lignin" - Recycle Technology of Wood Materials (Chubu Community for Millennial Symbiosis)

Used paper is frayed into fibers and then put in a molding box, where it is dried and molded. It is then put under lignophenol fluid until it absorbs the fluid. This process turns used paper into wood.
Everyone knows that paper is made from wood, but this facility shows that wood can also be made from paper.

A10 Reduction of Cooling Load by Photocatalytic Coating, Water Curtain and Mist (Nagoya City "Earth Tower")

Water flows over the external wall of the Kaleidoscope Tower to present patterns of water flow. At the same time, the entire tower is covered with a water curtain to prevent rise in ambient temperature, resulting in reduced cooling load. To make the water curtain spread over the entire tower, the external wall is coated with photocatalyst which provides ultra hydrophilicity. This coating also dissolves nitrogen oxides present in the air to make it harmless. In addition, a mist jet is emitted from three edges of the external wall to reduce ambient temperature.

Center Zone

B01 Fuel Cell Decorated with Ornaments (Global House)

A fuel cell that generates electricity using hydrogen and oxygen in the air is used to drive the "Galaxy Clock".
The fuel cell is exhibited near the welcome zone of the Global House.

B02 Solar Cell and Wind Power Generation (EXPO Plaza)

This all-in-one facility generates electricity using wind power and sunlight that are present in the natural world. It consists of a total of 27 units with power generation capacity of 84W for solar cell and 30W for wind power generation. The facility is used to provide power for night lighting.

B03 Bio Lung (EXPO Plaza)

A giant green wall located at EXPO Plaza, 150 meters in length and 12 meters in height. "Bio Lung" is a word combining "Bio," which means life, and "Lung," which is a necessary organ for life. With various problems, such as global warming and heat island phenomenon, becoming serious, the construction of towns where people can live comfortably is getting to be a more important issue. With the "green roof" concept spreading, green walls have started to draw attention as a means of expanding green areas. Not only greening the roofs, but also greening the walls to reduce air-conditioning load is just beginning.

B04 Aggregation of Soil by Glass Cullet (EXPO Plaza)

Recycling of tinted glass has been said to be difficult. Glasses broken into small pieces are called glass cullet, and when mixed into soil, soil particles are easy to aggregate. As a result, air permeability improves and microbes in the soil start to work harder. This makes plants grow well.
Comparison of plant growing speed is exhibited between soil with glass collets and soil without. This is a good example of the effective utilization of waste glass.
The photo shows a monument made of glass cullet.

Interactive Fun Zone

C01 Building with Bamboo and Tea Trees (NGO Global Village)

This eco-friendly building is made of natural materials like old bamboo and tea trees, and presents the image of an egg or cocoon.

C02 Paper Made from Bananas Stems (Wanpaku Treasure Island)

The technology that produces paper from banana stems is introduced at this facility. Since banana stems contain lots of fiber, they are suitable as raw material for paper. Not only paper, but also applications for clothing material are under development.
Banana stems have seldom been utilized until now, but their use for paper manufacturing can assist in forest conservation and reduction of waste materials, as well as contributing to industrial development in developing nations.
The aprons used at the paper mill corner are also made from banana stems.

C03 Organic Garden (NGO Global Village)

This garden utilizes nature's circulation mechanism. The water drained from the natural food caf_ kitchen is cleaned by bio-gio filters. Organic matter in the wastewater is dissolved by microbes lurking around plant roots and on the surface of porous ceramic, and is then absorbed by plants after it becomes non-organic. The purified water is used for ponds and rice fields. Visitors can actually see the purification progress of the wastewater.

Corporate Pavilion Zone

D01 Utilization of Driftwood Chips as Roadbed Material (Wonder Circus-Electric Power Pavilion)

Driftwood collected from the dams of hydraulic power plants is pulverized into chips and used as roadbed material (wood chip paving).

D02 Recycling Jellyfish and Shellfish that Drift Ashore at the Intakes of Thermal Power Stations (Wonder Circus-Electric Power Pavilion)

Jellyfish and shellfish that drift ashore at the intakes of thermal power stations are made into compost and then mixed with flowerbed soil.

D03 Photovoltaic Power Generation (Wonder Circus-Electric Power Pavilion)

This photovoltaic power generation system employs the latest type of amorphous solar cells on plastic film, and is used for spot air-conditioning in waiting areas. (Output: 10kW)

D04 Wind Power Generation (Wonder Circus-Electric Power Pavilion)

This wind power generation system generates electricity even with a breath of wind of just 3-meter wind velocity, and is used for nighttime lighting.
(Output: 23W x 7 units)

D05 Recycled Materials for External Wall (Mitsubishi Pavilion)

Recycled materials like PET bottles, rocks, ceramic ware and bamboo charcoal, are used for external walls based on the "3R" (Reduce / Reuse / Recycle) policy, to reduce waste materials.
The photo shows an external wall made from PET bottles.

D06 Wall Greening (Mitsubishi Pavilion)

Wall surfaces are covered with green plants to reduce air-conditioning load. At the same time, mist is generated in the surrounding area to reduce rise in temperature by vaporization heat.

D07 Photocalytic Tent (JR Central Pavilion: Invitation to the Ultimate Surface Transit System)

Photocalytic tents coated with titanium oxide are used as the large tent covering the superconducting linear motor car as well as the tent over the entrance.
These tents utilize ultra hydrophilicity, the feature that shows the tents' affinity with water when they absorb light. When water is sprinkled on the tent surface, it forms a thin film, and when the film evaporates, the tent's surface temperature drops due to "water sprinkling" effect, resulting in a drop in air temperature below the tent.

D08 Dry Mist (Wonder Circus-Electric Power Pavilion)

Water is sprayed in mist jets to remove vaporization heat, resulting in reduction of ambient temperature. This decreases the ambient temperature by 1 to 2°C. Nozzles are installed 3.5 meters above to provide cool air for visitors waiting at the entrance.

D09 Recycling Gum Trees for Chairs (Mitsubishi Pavilion)

In Southeast Asia, gum trees that have reached the end of their useful life are disposed of or burnt where they are. These gum trees have been used to produce the chairs that are used at the IFX Theater.
Gum trees have beautiful wood grain. This is a good example of effective utilization of waste materials.

Corporate Pavilion Zone

E01 Air-Conditioning Structure by Aqua Wall (Mitsui-Toshiba Pavilion)

Water flows from the 16-meter-high roof along louvers at the front of the pavilion, and then at a height of 4.5-meters it falls into a bowl. This provides a comfortable space for the visitors as it decreases the feeling of heat and increases coolness.

E02 Double-Sided Solar Panels (Hitachi Group Pavilion)

Double-sided solar panels can be installed vertically, allowing drastic reduction of materials used for panel mounting bases. The double-side type has an annual generation capacity approximately 1.3 times larger than that of the single-side type, and if it is installed vertically, light will not be blocked since snow, dust and bird droppings do not collect on the panel, thereby preventing drop in generation conversion efficiency. They can also be used as fences as they are, expanding the fields where the panels can be applied. The generated electric power is used for the Hitachi Group Pavilion.

E03 Wind Power Generation (Toyota Group Pavilion) *

The electric power generated by the wind power generation system built in Tahara City is supplied and used for the Toyota Group Pavilion. Emission of CO_2 is eliminated collectively. One generation system of 1980-KW output is used.

E04 Roof Greening (Gas Pavilion)

Approximately 50% of the roof is planted with greenery to block the heat from the external air, resulting in reduction of air-conditioning load.
Visitors can go up onto the roof and actually feel it. A mist generator is also installed at the center of the roof.

Forest Experience Zone

F01 Wood Chip Paving (Trail)

The pavement is covered with wood chips that are produced by pulverizing thinned wood into chips and solidifying them by steam pressing. The surface is soft and very comfortable to walk on. It can also retain water well, and is a good example of utilizing thinned wood as a solution against the heat island phenomenon. The same pavement is also used at the entrance to the Mitsubishi Pavilion.

F02 ECO LINK by Ministry of the Environment (Forest Visitor Center)

"ECO LINK" provides a trigger for individuals to start something that they can do themselves to protect our beautiful Earth.

F03 Nature School Forest

Participation in the Nature School Forest will surely provide an opportunity to encounter tips for an eco-friendly life style. During the tour in the forest, visitors can actually see the various attempts made in consideration of natural surroundings, including "utilization of thinned wood", "solar array panel", "utilization of rain water", "facility covered with greenery", "mud walls and roofs", "roof greening" and "wood chip paving".

F04 Reducing Ambient Temperature by Mist (Japanese Garden)

Mist is generated from the foot of the bridge near "Satsuki and Mei's House" at the rear of the Japanese Garden, to reduce the ambient temperature as well as presenting a magical atmosphere.

Global Loop

G01 Global Loop Base Materials

The Global Loop is 2.6-kilometers long and 21-meters wide, and the following are used as the base.
(1) Eucalyptus trees from Brazil
(2) Thinned wood from Aichi Prefecture
(3) Mixed material comprising waste wood and waste plastic
The light brown area in the middle of the loop is made of (3), and provides a higher level of strength than both the sides so that trams and emergency vehicles can run along it.

G02 Benches Made from Thinned Wood

Benches are provided on both sides of the Global Loop. These benches are made of thinned wood from Aichi Prefecture.

G03 Dry Mist from Tents

Mist generators are installed at the Global Loop. When visitors rest under a tent in the hot summer months, jets of mist are sprayed near the tent poles to remove vaporization heat. This cools down the surrounding temperature, allowing visitors to rest comfortably in the cool air. A total of 1,824 nozzles is used, and mist is sprayed from the places where tents are installed at both sides of the Global Loop.

Global Commons

G04 New Energy Facility (Global Common 5) *

An electric power system is constructed with a power generation unit, combining a fuel cell powered by methane gas generated from restaurant garbage in EXPO and high-temperature gas from wood chips with a photovoltaic power generation unit. It is also equipped with a NaS cell to store electricity. The electric power generated by this system is sent to the Japan Pavilion Nagakute. This facility can be seen from the Global Loop near the West Gate.

G05 Reducing Cooling Load by Photocatalyst (Global Common 4 / Rest Stop)

The photocatalyst coated on the roof surface dissolves dirt collected on the surface using the ultraviolet energy of sunlight. Due to reduction of dirt, it is bright inside the rest stop, saving on lighting electricity. In addition, when water is sprinkled onto the roof, it forms a thin film due to hydrophilicity of the photocatalyst, making it easy for the water to evaporate. This causes the temperature below the tent to drop, resulting in reduced air-conditioning load.

G06 Floor Made of Waste Mirror Glass (Global Common 3 / Italy Pavilion)

The floor (900m²) of the pavilion is made of flooring materials containing waste glass. The flooring materials are produced by mixing quartz and finely pulverized waste mirror glass with polyester resin and then molding them. This is a good example of utilizing glass that has conventionally been disposed of.
The surface twinkles with different colors, providing artistic features of Italy.

G07 100% Natural Cork without Tree Trimming (Global Common 4 / Portugal Pavilion)

Cork oak is a recyclable natural element. It can still be recycled even if its skin is removed. Since cork oak can be harvested a number of times without tree trimming, it is very friendly to the environment.
It grows only on the coast of Mediterranean Sea, and more than 50% of cork material in the world is produced in Portugal.
The pavilion introduces the current cork production state and activities.

G08 Solar Array Panel (Global Common 5)

Solar array panels near the West Gate are installed as one of the new energy power generation plants such as the fuel cell. The total power generation capacity of the three types of panels is 330kW, which is approximately 15% of the total planned power of new energy power generation plants. Most of the power is used for the Japan Pavilion Nagakute.

G09 Effective Utilization of Oil Palm Trees to Eliminate Waste (Global Common 6 / Malaysia Pavilion)

The Malaysia Pavilion exhibits and introduces effective utilization of palm trees and various waste elimination activities.
The amount of CO_2 that oil palm trees can absorb is more than five times that of the rain forest. The pavilion shows good examples of utilizing all the elements of palm trees without their wasting skins and trunks.

G10 Greening Semiarid Areas by Biomass Boards(Global Common 5 / Africa Pavilion - Ghana)

The activities in which the wood chip paving technology, used for the paving materials at the Nature School Forest and Seto Terminal, is applied to prevent desertification and promote greening in Ghana are introduced at this pavilion. This technology is expected to be used for the recycling of precious biomass resources in Ghana.

Seto Area

H01 Wind Tower (Solar Chimney) and Air-Conditioning System Using Soil Heat (Japan Pavilion Seto)

The solar chimney is a natural circulation system that intakes external air (cool air though the ground) and discharges warm air through the chimney.
This can reduce the temperature by approximately 4 to 6°C. The photo shows the chimney letting heat escape through the open windows in the top of the chimney.

H02 Hydrogen Supply Facility (Seto Gate) *

This station supplies hydrogen to fuel-cell-powered buses that run in EXPO areas. Unlike gasoline-powered vehicles, there are no CO_2 emissions from fuel-cell-powered buses, only water. This station can be seen from a fuel-cell-powered bus.

H03 Wood Chip Paving (Seto Terminal) *

This wood chip pavement is the same as that in the Forest Experience Zone. Since the pavement absorbs impact, visitors can walk on it without getting tired. This is a good example of effective utilization of thinned wood. Visitors using the Seto Terminal can actually feel it.

H04 Village Nature School

The Village Nature School provides the tips necessary for coping well with nature. During the tour in the forest, visitors can actually see the various attempts made in consideration of natural surroundings, including "utilization of thinned wood", "solar array panels" and "utilization of rain water".

H05 Reusing Wood Building Materials (Aichi Pavilion Seto)

The Aichi Pavilion Seto has a temporary building that is constructed on the facility. The facility will remain permanently when EXPO ends. The wood building materials used for the temporary building will be reused to build elementary schools in Aichi Prefecture after EXPO is closed. This project was started on the basis of such reuse. Visitors using the Seto Terminal can actually feel it.

Scraps of Knowledge

Thinned Wood

Thinning means to log some of the trees in overgrown forests, and these logged trees are called thinned wood. Rich forests can be regenerated by thinning.

Photovoltaic Power Generation

Electricity is generated using semiconductor elements (e.g. silicon) to receive sunlight. This facility produces eco-friendly energy.

Biodegradable Plastic

Biodegradable plastic is made from starch products such as field corn, and provides performance similar to conventional plastic. When being disposed of, it is dissolved into carbon dioxide and water by microbes, therefore it is friendly to the environment.

Roof / Wall Greening

The entire building is cooled down by greening not only the roof but also the walls. This method not only reduces air-conditioning load, but also allows the walls to be decorated with flowers and greenery.

Bamboo

Japan has become overgrown with bamboo trees, requiring preventive measures. It is necessary to promote effective utilization of bamboo trees.

Wind Power Generation

This facility generates electricity by rotating the propeller with wind force. It produces eco-friendly energy.

Photocatalyst

Titanium oxides act as a catalyst and cause decomposition using photon energy. Although photocatalyst provides various functions including deodorization, antibacterial action and antifouling, many facilities at EXPO utilize ultra hydrophilicity of photocatalyst to cool down the roofs to reduce air-conditioning load.

Fuel Cell

Counter-reaction of water electrolysis is utilized to generate electricity from hydrogen and oxygen present in the air. Only water is discharged, so compared to the conventional methods of burning fossil fuels to generate electricity, fuel cells feature high efficiency, low noise, low vibration and low emission of CO_2. The energy generated in this way is eco-friendly.

Mist

Devices that generate fine mist are installed at entrances and places where a large number of people gather to rest, to reduce the surrounding temperature by vaporization heat that is generated when the mist evaporates. These small and large sized devices are installed in ten or more places.

Other Facilities

Biomass Table Wares

"Biodegradable plastic" is made from starch such as field corn, and provides performance similar to conventional plastic. When it is disposed of at the end of use, it is dissolved into carbon dioxide and water by microbes, and is therefore considered to be friendly to the environment.

Fountain Bowl Made from Waste Ceramic Ware

Waste ceramic wares are those that are newly manufactured using particles obtained by pulverizing broken ceramic ware. The proportion of such particles in waste ceramic ware is 50%. Ceramic wares that would conventionally be buried are recycled to reduce the amount of waste.

Fuel Cell Hybrid Vehicle Bus

Fuel cell Hybrid Vehicle Bus, that use hydrogen as fuel to generate electricity, are next-generation vehicles. Gasoline-powered vehicles emit CO_2, that causes global warming, and nitrogen oxides, that are harmful to the human body, however only water is discharged from fuel-cell-powered vehicles.
Low noise and low vibration are other features of these buses.

EXPO AMEDAS (Automated Meteorological Data Acquisition System)

Temperature, ground surface temperature, wind direction/speed and CO_2 concentration in the Nagakute Area are measured at approximately 20 points, and the results are shown on the home page (EXPO ECO CLUB). This is utilized for verification of landscape conservation and environmentally conscious building of the EXPO site, as well as for environmental education programs.

Uniforms Made from Regenerated Fiber and Vegetable Fiber

Uniforms are manufactured for staff in each pavilion. Many of them are made of eco-friendly materials (e.g. regenerated PET bottle fiber, regenerated clothing, bamboo fiber).

Biomass Banners and Signs

Not only tableware, but also banners and signs (information signs) are made of biodegradable plastic.

Garbage Separation (9 Categories)

To be friendly to the environment, garbage is sorted into 9 categories by visitors and 17 by EXPO staff. This is also targeted at improving awareness of garbage separation.

Eco-Friendly Souvenirs

Packing boxes and mat boards are made of recycled paper and minimized in size. In addition, visitors are encouraged not to use shopping bags to promote eco-friendliness (at shops selling official commemorative gifts). The photo shows the minimized mat boards.

Note: The facilities marked with "*" may not be seen in the vicinity since they are located at the back or outside the area.

「EXPO ECO BOOK」

"EXPO ECO BOOK" with full descriptions of major facilities is available free. Please use it together with this map.
The EXPO ECO BOOK is available at the information center.

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EXPO 2005 AICHI JAPAN

EXPO Eco-Money

EXPOエコマネー

The "EXPO Eco-Money" project is designed to verify and experiment a new social system. "EXPO Eco-Money (= points)" is given to people who carry out activities such as the reduction of shopping bags and other eco-friendly activities, and in return they can collect points as mileage points. The points can then be exchanged for privileges or giveaways, or donated to local environmental conservation activities. This project is targeted to raise and promote awareness of "eco-friendly activities" through EXPO. "EXPO Eco-Money" is issued inside and outside EXPO.

If you bring this map to the EXPO Eco-Money Center after visiting environmentally conscious facilities, Eco-money points will be given to you.

http://eem.jp/