

Environmental Education Book for Children in China, Japan and Korea

For Our Common Future

Environmental Wisdom in Traditional Culture



Tripartite Environmental Education Network
among China, Japan and Korea

Imprint

For Our Common Future: Environmental Wisdom in Traditional Culture

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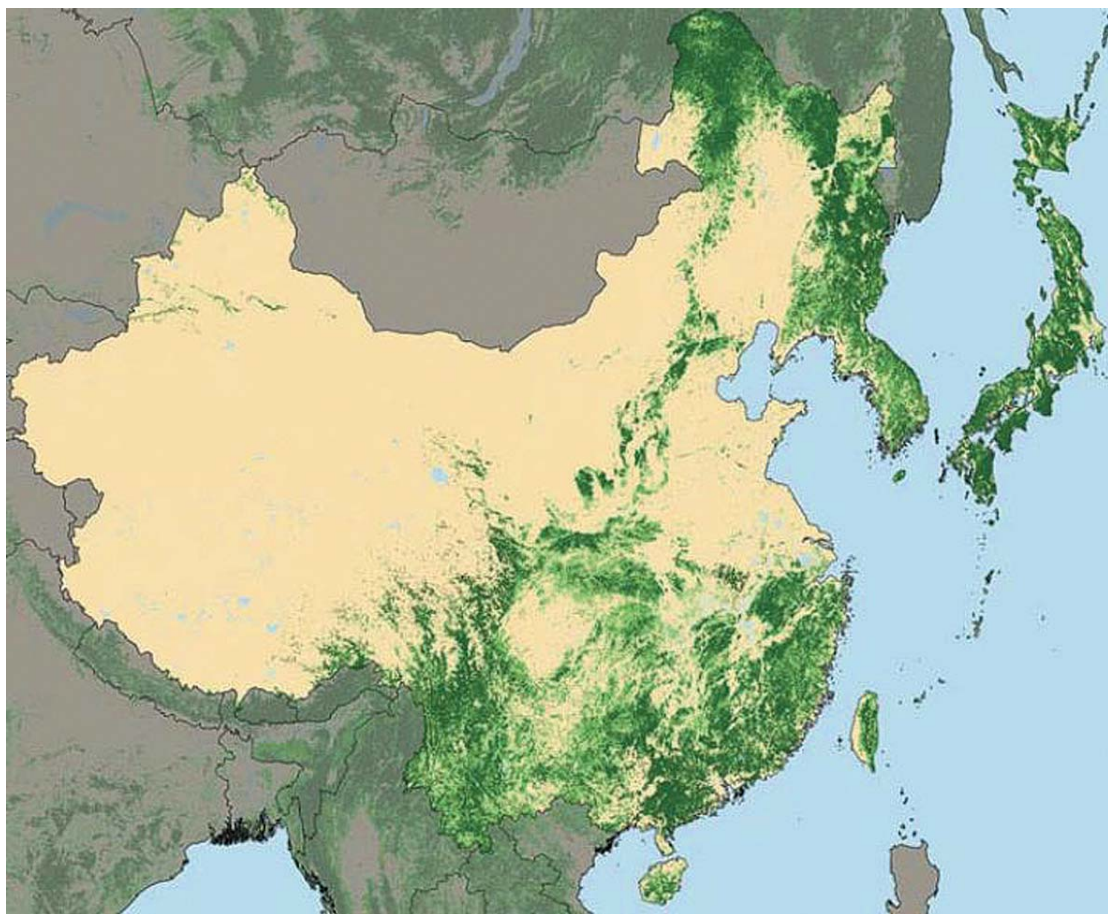
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Introduction

Asia is broadly divided into five regions. The three nations of China, Japan, and Korea belong to East Asia and are adjacent to the Pacific. This region is placed in the middle latitude of northern hemisphere and has both microthermal and temperate climates. It gets plenty of rain and has an extensive rice farming culture. China, Japan, and Korea share similar cultures but have their own unique traditional cultures reflecting the natural environmental characteristics of the terrain and climate of each country. We will find out what kind of environmental wisdom is hidden in the traditional culture of China, Japan and Korea focusing on food, clothing, and shelter, the necessities of life and how much do these nations have in common in this respect and what differences exist among them in these regard.



East Asian region where China, Japan and Korea are located. [Source: Adapted from FAO (2001)]



Environmental Wisdom in Costume

What do we have on all the time 365 days a year? That's right! Clothes! Clothes expose the job or the status of the person wearing it and they protect our body too. Then let's find out where our ancestors found clothes and what clothes they wore. Also let's see how their costumes are different from ours.

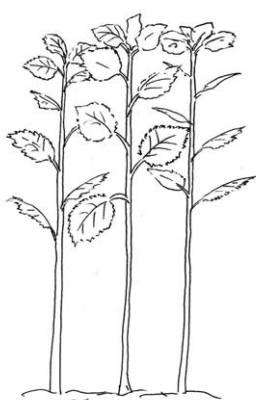
The process of making clothes can be broadly broken down into three steps, making threads, making fabrics, and dyeing. The kinds of plants or fabrics used to get clothes or tools to make fabrics are slightly different by countries but we can find out that the process of making clothes is pretty much the same in the three nations of China, Japan and Korea. So let's review similarities and differences found in the environmental wisdoms contained in the traditional cultures of China, Japan, and Korea.

Making threads

In ancient times, people had to get materials from nature in order to have yarns to make clothes. Threads were obtained from plants like ramie plant and cotton and threads were also gathered from animals such as silkworm. In the East Asian region where there are four distinct seasons, materials for yarns varied by seasons. In the case of Korea, Koreans used cotton or silk to make apparels in spring or autumn time and these clothes were obtained mainly from cotton or silkworm. During summer, clothes made of ramie or hemp was popular to keep cool. Silk clothes using threads obtained from silkworm were found during winter season. As such, cool clothes were used during the hot summer to let in cool air and thick fabric-based clothes were

worn during winter time to keep warm.

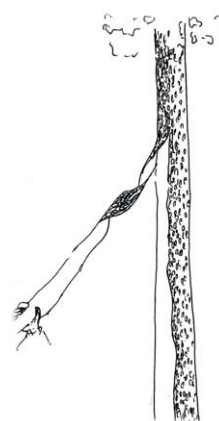
Fabric can be produced from the bark of many plants and grasses. In Japan, wisteria (*Fuji*) with purple flower, *Tilia japonica* (*Sinanoki*), a tree unique in Japan which can grow up to 10m, paper mulberry (*Broussonetia kazinoki*), tapa (*Broussonetia papyrifera*), *Boehmeria platanifolia*, a type of *Boehmeria*, kudzu, a long winder plant, and hemp, a kind of mulberry are used as materials for clothes. People knew how to make clothes (or fabric) out of the trees or plants that grow on the land they inhabit. In Hokkaido, local people made fabrics using the bark of *Ulmus laciniata* growing in the forest. In Okinawa, the bark of *Musa basjoo*, a kind of banana tree, is what local residents used to make clothes. Of course there were plants that can be found all over Japan such as kudzu. In the meantime, *Boehme platanifolia* and hemp, which have lengthy fabric, are farmed to make clothes in various regions.



Boehme platanifolia



Kudzu



Tilia japonica

The first person to make silk out of threads produced from silkworm in China is said to be the wife of Emperor *Zhengjian*, Empress *Xuewen* (*Rezo*). She ate the leaves of mulberry tree and found the silkworm growing on the leaves. So she collected these worms and gained yarns from them to make silk. She transferred her knowledge of getting yarns from silkworm to other people and that is why she was called the goddess of silk.



Silkworms eating leaves of mulberry tree



Two women preparing leaves for silkworms

Before the period of Shang Dynasty, silkworms were farmed using mulberry trees and silk was made out of the threads obtained from silkworm. But their number was very small. In times like today, where we need clothes for many people, mulberry trees have to be farmed and grown to produce more fabrics. Already in the Zhou Dynasty, growing silkworms at home was very common in the areas near the Yellow River. There is a prose on mulberry, silkworm, and silk-weaving in ancient poetic works of *Shijing*. In the past, silkworms were farmed indoor at dedicated silk-production workshops, which were equipped with silkworm farming tools and silk-yarn production equipments such as silkworm bar and rods to easily make a reel of silk yarns produced from silkworm. Later came out improved types of mulberry suitable for growing silkworms and strong types of silkworm were chosen to raise the quality of silkworm.



Silk from the Warring States Period



Silk from the Han Dynasty



Silk from the Tang Dynasty



Silk from the Yuan Dynasty

Silkworm or cotton has been commonly used in China, Japan, and Korea to get yarns. It is said that silkworm was introduced to Japan from China 2000 years ago but silk was enjoyed only by the privileged elite class. Cotton was imported to Japan in the Edo Period from Korea and cotton fabric started to be produced with the introduction of weaving machine in the Meiji Period and it became widely popular then. Recently, silkworm and silk cocoon come in many colors by controlling genes or what they eat and the materials thus produced are used to make fabrics. Sometimes, natural dying is used for making color cocoons.



Zebra Silkworm [source: NAAS(2009)]



Color Cocoons [source: NAAS(2009)]

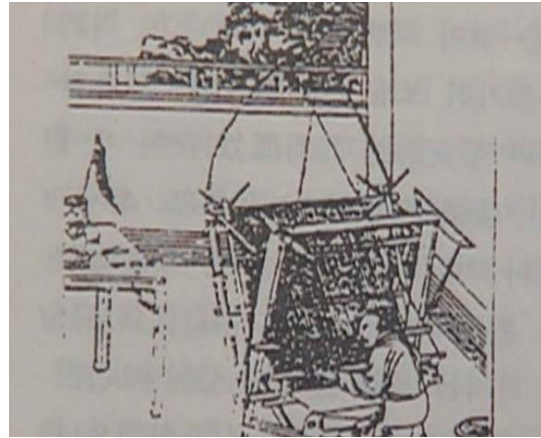
Weaving a fabric

After obtaining threads, you need to weave a fabric. This process is called ‘*gilssam*’ in Korea and this custom is said to have began back in the 2nd ~ 3rd centuries. It was one of the most important chores of a family. *Gilssam* is a process of making a cloth using a loom.

Look closely at the clothes you are wearing right now. Can you see the threads woven horizontally and vertically? In ancient times, a fabric was also produced through a combination of vertical and horizontal layers. This process is weaving and the equipment used to weave a cloth is called a ‘loom.’ The loom we use today to get a fabric manually is no different from the ones that are used in those days. As you can see in the images below, there are no big differences among China, Japan, and Korea when it comes to a loom. Weaving was and still is a time-consuming job so you can weave only a few centimeters of a cloth a day. The problem we have today is that there are not many people who are willing to learn the skill of making clothes out of what are gained from nature.

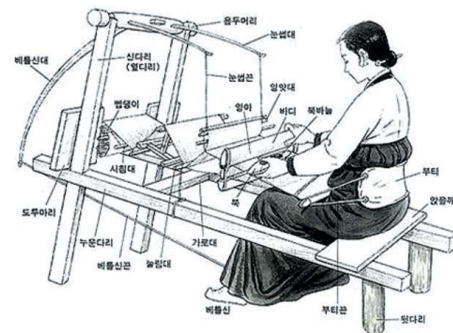


Loom in Japan



Loom in China

Weaving a fabric using these looms was a sedentary job requiring a lot of time. So people sang a song to endure this hard task. There are several folk songs called ‘*bettle-ga* (a song of a loom)’ found on the Korean Peninsula. The culture of singing a song to finish difficult works can also be viewed as wisdom found in Korean traditional culture.



Loom in Korea

Dyeing



Dyed fabrics

After producing a fabric, you should dye it with color that suits the purpose or function of a given costume. We call this process dyeing and we gained the materials we need for this process from nature.

In the book called *Quanxuepianxu of Xun Zi* in ancient China, there is a phrase that 'blue color is dyed with chignon but its color is a deeper blue than chignon's.' This phrase is often quoted to say that a student is better than his teacher. So we can see that dyeing using chignon was already popular in China in BC 3C when this book was written.

Look at the colors of the fabrics in the picture. These colors are those of chignon. How was it possible to produce such various and beautiful colors? In the case of indigo, it has been said indigo was effective for feeling of cold, chalk mark, heat rash and protection from insects for a long time. Most of what is called Chinese medicine, and herbal medicine, can also be used as a dye. Today we have dyes and paints so we can easily get the colors we want from factory, but in the past, dyeing was made using colors from nature. Plants were popular for this purpose and colors were gained from flowers, fruits, roots, and grasses.

For instance, chignon or dayflower was applied in Korea to dye in blue. Cape jasmine, *Phellodendron nmurense* Rupr., *Camellia sinensis* L., Chinese scholar tree and safflower were used to get yellow, while safflower, carthamus, madder, and *Caesalpinia sappan* were for red color. The root of *Borranginaceae* was the ingredient used to get wine color. These ingredients are called dye and sometimes you need more than just one dye. So our ancestors used a fixative to help dyeing. This additive facilitates clothes to absorb dyes and caustic soda, lime collected from cockles shell or oyster shell, vinegar,



Natural Dye Festival in Shinjuku, Japan

Maximowiczia chinensis and Japanese apricot are such examples.

In Japan, natural dye is often used for traditional costumes like kimono. As you can see in the picture at right, traditional dye festivals are held every year in places such as Tokyo, Kyoto, and Kanazawa. In the past, dyeing was rinsed in the river. Why was this custom disappeared?

What about now?

Most of the clothes we are wearing today are made of chemical textiles, such as rayon, polyester, and nylon. These fabrics are obtained from artificially synthesizing ingredients like oil, for example.

How come we came to need chemical textile? In order to produce a fabric from nature, we have to invest extensive time and efforts. We needed to produce clothes in a mass scale with no big money. Chemical textile is produced from factory machines in a matter of minutes and thanks to technological advancement, they are soft yet tough and warm and strong.



Machines in a textile factory in China

In order to get chemical fabrics, we need a large amount of electricity to operate machines in textile factory. Noise is generated from these factories of course. Also transportations used to deliver materials and products are demanding a lot of fuel and energy. Sometimes the energy generated from burning fossil fuel is needed. The clothes produced from nature are

biodegradable, meaning they are degraded by microorganism living in soil and go back to nature. But chemical textile is not biodegradable even if we bury it in soil. Some of it also generates harmful substances when it is burned. So chemical textile is burdensome to the earth both when it is produced and when it is thrown away.

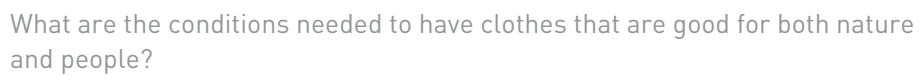


What are the ingredients needed to produce natural fabric and chemical fabric?



What are the pros and cons of natural materials and chemical textile?







Environmental Wisdom in Food

We cannot live without food. We have been hunters, gatherers, and farmers since ancient times. Still it is difficult to get or cook food right away whenever we are hungry and particularly more so during winter time when it is hard to farm or hunt and there is even not much fruits. So, humankind has developed a mechanism of ‘storing’ food since antiquity to be able to have something to eat at any time we need. The ways to store food have evolved from drying and pickling to fermentation.

In here, we will look at various wisdoms in food preservation that are inherent in the traditions of three countries of China, Japan, and Korea and think about food storage ideas that take into account the environmental context.



Ways to search for food - hunting, gathering, farming from left to right



Drying, pickling and fermenting food

Dried food and dried bonito of Japan

One of the easiest preservation methods is drying food under the sun or wind because you can preserve food to some extent without taking any special measure. There are many ingredients to make them into dry food and most fish, vegetables, and meat stuff can be stored in dried state.

 What kinds of dried food you know? Please write down.



Umami, the representative taste of Japan is originated from dried bonito. *Umami* means ‘mellow taste,’ the fifth basic taste following salty, sour, sweet, and bitter and it is a term that is used globally. The basic ingredient used to give this taste is ‘dried bonito.’ In Japan, bonito had been dried well → boiled → dried again and roasted → got mold → dried more and then used for making food to enjoy mellow taste in all seasons. This ingredient is shaved and put in various soups including miso soups (*Shirumono* and *Misoshiru*) or taken without combining it with other food.



Katsuobushi



Dried bonito grater and mold

😊 As Japan is an island nation, there are abundant bonito that ride ocean currents to arrive at Japanese seas, offering rich dried bonito production at the area of Kagoshima, Shizuoka, and Kochi prefectures, etc. from ancient times.

Which foods in Korea and China are dried like bonito in Japan? What are the similarities and differences found among these three nations?



For instance, sweet potato is made into a dried food to last winter time in China's Shandong province and meat is chopped into tiny pieces, marinated with seasoning, made into sausage and stored after being dried under windy weather. In Korea, vegetables are dried and used for making soup and pumpkin and sweet potato are dried and can be eaten like a fruit chip. Sometimes these dried pumpkin and sweet potato are put into water to boil and make them into porridge. Fish like squid, anchovy and Alaska pollack is dried and eaten as it is or it is taken after being boiled or steamed.

In the past, ingredients that can be easily found near you were dried with the power of nature, like sun or wind. But, what about now? You can see a variety of dried foods sold in food stores. There is also a food drier you can use at home. Making dried foods has not changed from the past. But how is it different from before in terms of how dried foods are made?



Processed dried foods



Food drying machine

😊 Please read the label of a processed dried food and 1) write down where its ingredients came from and 2) what food additives were applied to preserve this food.

1)

2)

😊 Think about what impact getting ingredients from distant places like this and including food additives have on our health and the earth.



For instance, many processed dried foods sold in the market are imported. Also these eateries contain antioxidant and food additives to prevent foods from going bad as a result of reaction with oxygen in the air.

😊 What are the pros and cons of drying with sun and wind and drying with a food drying machine?



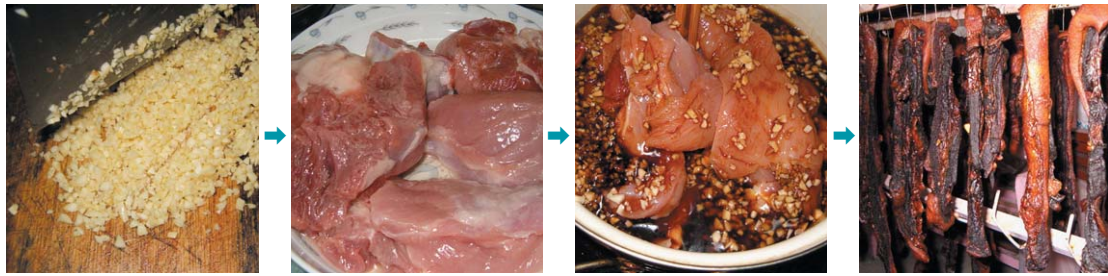
Pickle and *larou* of China

Various food preservation methods have been developed to get food in the winter season. Especially China, Japan or Korea has a fully developed vegetable food culture thanks to the influence of Buddhism, and this has given rise to vegetable preservation methods that have been passed on for many generations to be able to get vegetables even in winter. People in these countries came to know that they can preserve vegetables produced in autumn for a long time if they pickle them in salt and they kept them mainly in pots. Pickling may not keep the freshness of vegetables but can avoid them from going bad, so this method is suited for winter season when it is hard to get fresh vegetables.



Pickled food

Pickled food is especially advanced in Sichuan province, a mountainous inner land region of China. What is unique is that meat like pork is salted and pickled, particularly during summer. Raw meat is salted to preserve the meat after livestock is butchered. The beauty of this preservation method is that the meat does not rot and can be cooked and eaten at any time.



How to make *larou* (pickled meat)

😊 Salting and pickling is the most notable example of food preservation in China, Japan, and Korea. What kind of pickled foods are there in Japan and Korea? What are the similarities and differences of these three neighboring nations?



‘*Tsukemono*’ in Japan and ‘*jangajji*’ in Korea are examples of pickled foods.

In the past, people often lived in farming areas so they made pickled foods at home. But what about now? More often than not modern families nowadays buy pickled foods rather than preparing them at home.



Home-made pickled food



Processed pickled foods

😊 What are the pros and cons of making food at home and buying it from stores?



Commercial food has many hidden processes involved. Foods sold at stores are produced using machines in clean production facility and most of them are sold in plastic or vinyl packs. Power is needed to produce them at the facility and the packaging itself is not biodegradable. In addition, fossil fuel-based transportations are utilized to move these foods from the plant to the stores. Therefore when we decide what choice to make, we have to consider not only our own convenience but also these hidden processes.



Follow the basic recipe as below. Choose the ingredient you want and prepare a pickled food.

〈How to make a pickled food〉

- 1) Wash the ingredients you chose in clean water and drain them. Then cut them into pieces.
- 2) Put water and salt in a pan, and add vinegar, sugar or soy sauce if necessary to make a sauce. Boil them and cool them.
- 3) Place the ingredients in an airtight container and press them down with a bulky stone.
- 4) Pour the cooled sauce into the container and close the lid. Keep it in a cool setting for several days.



Fermentation and kimchi of Korea

What do bean paste sauce, yogurt, and cheese have in common? They are all fermented foods. Even though fermentation goes through pickling process, its nutrients and taste differ from pickles as fermentation involves microorganisms. During fermentation, bacteria helpful to human body increases while harmful bacteria are prevented from growing. For this specific reason, fermented foods are recognized as healthy foods. Ancestors in China, Japan, and Korea, rich in vegetable food culture, consumed beans to make up for shortage in protein and soy sauce, soybean paste, and *chunggukjang* obtained from fermented beans are the important source of protein and sauce that give the right taste for various dishes.



Various fermented foods (soybean paste, cheese, yogurt from left to right)

Among fermented foods, Korean kimchi is famous worldwide and has been designated as UNESCO's intangible asset of humanity along with kimchi-making culture. It is the most basic dish in Korean meal and their kinds widely vary depending on seasons and regions. The most notable example, of course, is pickled radish kimchi made from fermenting radish, which is pickled with salt and seasoned with red pepper powder and *jeotgal* (pickled fish). But *kimchi* is also made with spring vegetables like dandelion and Korean lettuce in spring and cucumber or young radish in summer. Even there is a variety in the same *kimchi*. Cold northern regions use less red pepper powder or *jeotgal* and make *kimchi* with more soup while warm

For example, bean sauce like soy sauce or soybean paste sauce is what is commonly found in all three cultures. In 700 BC, fermented meat, fish or vegetable was called soy sauce and this was imported to Korea and Japan and has evolved according to individual national environment and food style.

In the past, these fermented foods were often kept in a pot or earthenware to keep them fresh. But what about today? Fermented foods are still popular but they are kept in a refrigerator not in a pot. Not only fermented foods but also virtually all foods are stored in a refrigerator.



Pot or earthenware




Refrigerator

😊 Why are we so dependent on a refrigerator to keep foods unlike in the past?




As you already know, refrigerator needs electricity. If a refrigerator doesn't work for a single day, foods will go bad. So a refrigerator consumes power all day long. However we need fossil fuel such as oil to produce power and this fossil fuel consumption is having a negative impact on earth. Therefore we need to be aware of the effect a refrigerator, which is indispensable in our daily life these days, is having on earth. Let's think of the need of a refrigerator and how we can save energy.

 Let's think about what kind of foods are kept in a refrigerator. What are the ones that must be stored in a refrigerator? What are the characteristics of those foods?



 What sort of action can we take to reduce the use of a refrigerator?



How can we develop these food cultures in a way that is beneficial to our lives and the future of earth? Let's get wisdom from traditions and look back at our current changed life styles and think of what we should do from here on.

Imagine how our eating style in the future would differ from now.





Environmental Wisdom in Housing

With the shift of production mechanism from hunting and gathering, people started to build houses and make settlements. What kind of housing developed in the Northeast Asian region with its distinct four seasons? Today it is typical to have western-style houses and apartment buildings, but what type of materials were used to build houses and what values mattered in making houses in the past? Let's look at the environmental wisdom contained in the traditional housing cultures of China, Japan, and Korea and reflect on the current housing.

Traditional landscape - Harmony between human and nature

The biggest difference between western-style painting and oriental painting, when you compare them, is that the former is centered on people while in the latter natural landscape often takes the center and people are only part of this setting. This reflects the oriental philosophy of people in Asia in the past that nature is not something we develop and change but that placed harmony with nature as a priority and they took it as something natural.

People in the past in Korea preferred to have villages that are surrounded by mountains like a fence. If there is an open space in front of a village, then they created village forest (protective forest) to hide the village and



Spatial layout and main functions of traditional villages
[source: Lee *et al.* (2009)]

connected this forest with a mountain range. So a traditional rural village in Korea had residential area, farming plots, big unpaved road and alleys inside the boundary formed by a mountain range. This traditional village has rear mountain (woods), houses, and rice paddies closely linked via the flow of energy, nutrients, and water. It would be a loss to have sewage generated from households if it flows fast out of drainage basin so it was kept in a pond so that it can flow out as slow as possible and have time for microorganisms to absorb it. Nutrients still remaining in the water was used for rice paddies. Such village's spatial layout has the character of making it easy to get water resource from collected rain and reuse large amounts of nutrients through inner circulation mechanism. Most necessities, water, food, lumber, and firewood were supplied from the village itself and waste treatment utilized natural degradation process to be able to use it as compost. So recycling process was applied.





Draw a rough map of your village. Indicate in blue where there are production activities and in red, show where waste is produced from consumption. Please indicate in green where consumption is made but reuse is also taking place in your village.


Ex) Production activity: park, fields and paddies, forest, etc.

Consumption → disposal activity: department store, retail store, market, apartment building, school, etc.

Consumption → recycling activity: traditional house, recycling center, etc.

 Get a traditional village map and indicate in colors as above.

 Compare the two maps and identify where we get the water, energy, and food we consume and what happens to the waste we generate.



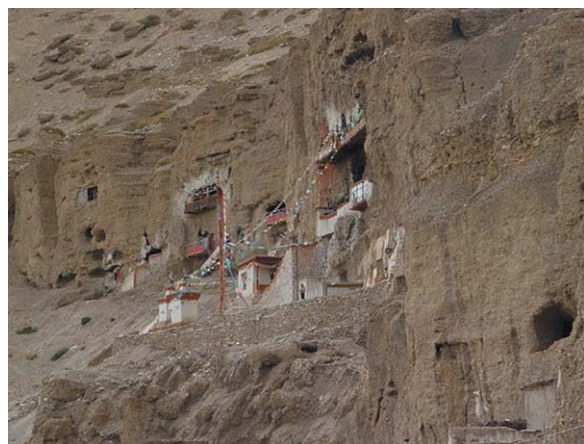
Escape from cold and heat - Various architectural styles in China

How did people in the past endure cold or heat without any air-conditioner or heater? Our ancestors had reflected climate features beginning from architectural stage and changed architectural structure depending on season to cut energy consumption while taking shelter from cold and heat.

China is the largest country in Northeast Asia. So there are diverse climate zones and this variety gave birth to a wide range of architectural styles.

We can easily see a big difference in farming houses between north and south as we travel from Yangguang region to the Heilongjiang River. The houses in the south are low and wide and have good ventilation while the ones in the north, especially the houses in northeast provinces, are high and tightly spaced and they have a very closed structure. Since summer is long and hot, summer heat is a key concern in the south. But winter is long and cold and summer is short and cool in the north so winter cold is a critical matter to be addressed. If houses in the north are neither high nor closed structured, they may have hard a time retaining heat.

In dry regions in China, where daily temperature range is wide between day and night, houses have thick walls and small windows. Houses in Xinjiang Turfan region, famous for scorching heat, are located underground to take advantage of underground cool temperature. Vine plants like grape are grown behind houses to shield roofs and walls from direct sunlight and




Underground hotel in China

keep indoor temperature cool.

Loess Plateau in China has thick loess of over 50~80m in average. There is a culture of digging ground and building houses underground. Underground houses are mostly built on a cliff, allowing houses to be arranged in zones and making them appear like a huge apartment building when they are seen from a distance. This housing style keeps its dwellers warm in winter and cool during summer, so it is still an important way of dwelling and a secret behind longevity in the region.

As such, different housing styles by differing climates in China structurally reduced the need for air-conditioning and cooling.

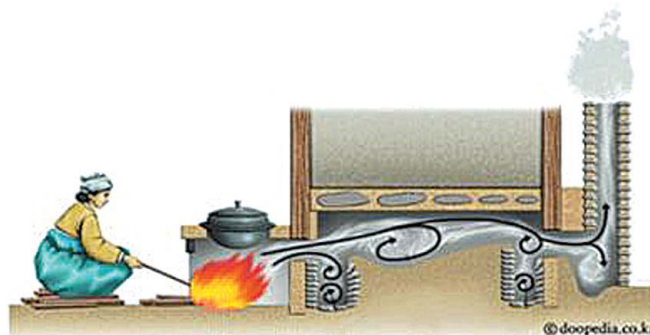
 We can also find the layout of houses that change from an open-type to a closed one as we move from south to north in Japan and Korea. Please search for relevant details and compare the two. What similarities can you find with China? What are the differences?



Escape from cold and heat - Ondol and Hevening in Korea

Unlike the West, where heating is made by heating indoor air, Korea has developed the *ondol* culture, which heated a room by heating its floor. *Ondol*(warm stone) is a heating style also found in northern Chinese provinces. It is made of piles of bricks and mud and under ondol there are conduits for heat passage. Its one side is connected to a furnace to cook food in kitchen and the other side is linked with a chimney. In the West, a fireplace is used mainly for cooking and heating indoor. Meanwhile, fire is made in a furnace to cook and *gudeuljang*, which retain heat for a long time by way of heating floor stones is used for heating. Once being fire-heated in the evening, *ondol* floor provided a warm bedroom until early the next morning.

Science behind the eaves of the roof was another key to architectural structure that allowed escape from cold and heat. In Korea, the height and length of the eaves were an important consideration in constructing traditional houses. People searched for the angle and length of the eaves that enabled lengthy sunlight during winter and shorter sunlight during summer to control the amount of incoming light and maintain adequate temperature inside the house. Main floored room was located between rooms to be able to remove and lift doors during hot summer. Where the door is removed, is placed with a blind to keep from sunlight or protect privacy. Wind blew in to give cool and fresh atmosphere.



Structure of Ondol



Blind in Japan



Main floor room in Korea

😊 Compare western fireplace and *ondol* culture in terms of heat efficiency. Which one is more efficient? Why do you think so? What sort of experiment can you carry out to compare them?

😊 In *hanok* (Korean traditional house), there is often a large court in front of its main floored room and a small flower bed with trees and flowers in its rear. What kind of role does this flower garden has in terms of helping air circulation, besides providing beauty as a flower bed?



House, returning to nature - Recycling technique of Japan

People in the past built their own houses or inherited them from their ancestors. As such, they invested time in building the houses for their family and they kept them with great care.

The materials for *machiya*, a traditional housing in Japan, can be removed and reconstructed one by one. Buildings made with concrete or man-made construction material require demolishing and rebuilding for reconstruction or expansion. But *machiya* can be dismantled and reused. House repair is called ‘curing(養生)’ and a carpenter can completely sort out recyclable construction materials when repairing houses that can be reused while removing any parts that cannot be reused and replacing them with other wooden materials. In the middle of the Edo Period, ‘*tatami* sectioning’ technique emerged in which decisions on the locations of pillars are made depending on *tatami* (Japanese traditional floor mat). As a consequence, the size of materials such as sliding door or framed door was made in conformity with the height of *machiya* or the width of inside space of a house. Thanks to this development, people moved carrying *tatami* or sliding doors to reuse them for their new houses.



Lattice used in substitute of a blind in Japan



Main door made of elm-like tree in Japan

In the past, materials easily found in nature were used to make houses. In Korea, materials easily found in the area were adopted for a rooftop.

In rural area where it is easy to get rice straw, we can easily see a thatched roof made with rice straw. Though this roof was replaced with a tinned roof in the process of modernization, there is a scientific theory behind a thatched roof. As in the case of a thermos bottle, air provides good insulation. During summer, it gives a shelter from strong sunlight and it prevents warm air from being lost in winter time. The extremely smooth surface of rice straw makes raindrops in rainy days to flow down easily, preventing rain from leaking inside homes. A thatched roof has a relatively gentle angle and many farming households used the top of the roof as their second garden or kitchen garden. The rooftop of a thatched roof was used to grow pumpkin or gourd or dry red pepper in the sun and the plants grown on the rooftop helped cool the indoor temperature of a house during summer season.

There was ‘*nurwa* roof,’ whose roof is made of woods, in mountain villages. The longevity of this roof roughly weaved with wooden blocks was longer than expected and it was said to be good at ventilation and controlling humidity.



Nurwa roof in Korea



Rice straw-based thatched roof in Korea

 Which parts of my house is recyclable? Which feature makes them recyclable?

 What kind of materials is applied to my house roof or rooftop?

 Think of what we can do to reuse our rooftop and make it environmentally friendly.

Dwelling cultures developed in China, Japan, and Korea with their four distinct seasons have many inconveniences. Still we can learn that their priority was minimal energy consumption and natural circulation. In the past, it was not as easy as now to get energy or to be supplied with construction materials from other regions. So houses were built using the materials people can easily get from their surrounding environment. As a result, houses had distinctive traits by region and the forms most adaptable to the given conditions of the region. Because convenience is emphasized in modern housing, the structures of housing are getting uniform and houses

have much higher energy consumption. What should be the style of our housing in the future?

😊 The criteria employed by UNESCO, a UN organization that assesses the values of cultural heritages of mankind, when it selects the world cultural heritage are as follows:

Criteria for UNESCO world cultural heritage

- I . represent a masterpiece of human creative genius; or
- II . exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design; or
- III . bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared; or
- IV . be an outstanding example of a type of building or architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history; or
- V . be an outstanding example of a traditional human settlement or land-use which is representative of a culture (or cultures), especially when it has become vulnerable under the impact of irreversible change; or
- VI . be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance (the Committee considers that this criterion should justify inclusion in the List only in exceptional circumstances and in conjunction with other criteria cultural or natural);

How much of our dwelling styles we have today can be nominated as UNESCO world heritage by our future generations?

😊 Think of in what way the place we live in the future would differ from where we live now.

Conclusions:

Biocultural Diversity and Traditional Ecological knowledge

Like other species, humankind is an intrinsic part of the natural environment. Humanity has transformed and used Nature while human culture has formed in the process of mankind adapting to the natural environment. Therefore, Korea, China, and Japan, which are geographically adjacent to one another, have naturally shared culture but at the same time, developed their own unique ones. Understanding, maintaining, and restoring the diversity of life means making biological and cultural diversity sustainable. It's because the two are not separate from, but are supporting each other.

Biocultural diversity comprises the diversity of life in all of its manifestations ? biological, cultural, and linguistic ? which are interrelated (and likely co-evolved) within a complex socio-ecological adaptive system. By phase, this can be described as follows: First, the diversity of life includes not only the diversity of species of animals and plants and their habitats and ecosystems on earth, but also human cultural and linguistic diversity. Second, such diversity does not exist independently or in parallel but is another manifestation of one complex whole. Third, links among them are believed to have created global effects as a result of the long accumulation of the reciprocal adaptation processes of Nature co-evolving between humankind and the environment at a local level.

Traditional ecological knowledge refers to information that people living in an area have found, recorded, and transferred in the process of interacting with the surrounding environment for a long period of time. It is not simply old knowledge but one that has been converted and revised, transcending time and space. Linguistic diversity acts as a key pillar in the

link between biocultural diversity and traditional ecological knowledge. Humankind remembers, records, and delivers his or her traditional ecological knowledge in a linguistic form. Therefore, linguistic diversity plays a key role in maintaining biocultural diversity in a region because the language and traditional ecological knowledge in a region cannot be separated. Against this backdrop, it is worrying that some indigenous languages worldwide are disappearing at an alarming rate.

In the tradition of Korea, China, and Japan, we would like to seek and share environmental wisdom for our beliefs delineated as follows: First, traditional ecological knowledge is the main source of knowledge and information required for sustainable development. Second, sustainability at a local and state level functions as the basis of global sustainability. Third, linguistic diversity has weakened in East Asia, which has experienced rapid industrialization over the past half-century. As a result, unless necessary measures are promptly taken, we are expecting serious difficulties in preserving, recording, and transferring traditional ecological knowledge. Herein lies the significance of this textbook.



Now let's look around us. In which tradition can we find environmental wisdom?

How can we keep and further develop it?

Handwriting practice area with 20 sets of horizontal dashed lines for writing practice.



APPENDIX

TEMM Tripartite Environment Ministers Meeting among China, Japan and Korea

Recently, with the rapid growth of Asia, problems such as environmental pollution and destruction of nature have arisen, and how to make a sustainable society has become a great concern. Though economic and social situations differ greatly from each other among China, Japan and Korea, we need to solve environmental problems hand in hand beyond national boundaries. The ministers of the environment of China, Japan and Korea, therefore, have held "Tripartite Environment Ministers Meeting among China, Japan and Korea (TEMM)" every year since 1999. The three environmental ministers meet face-to-face to discuss how to cooperate in solving environmental problems. They make a plan every five years to tackle with priority issues. In addition, under the TEMM framework, governmental officials, experts and business people carry out various tripartite projects in cooperation.

<http://www.temm.org>

TEEN Tripartite Environmental Education Network

"Tripartite Environmental Education Network (TEEN)" is one of the projects under the framework of TEMM. Every year since 2000, the three countries have hosted meetings in turn, inviting government officials, experts on environmental education, educators and business people. They exchange information on and discuss environmental education, and a symposium for the general audience is held as well. They learn environmental problems of each country and exchange wisdom, techniques and experiences in terms of solutions, which can be utilized for environmental educational activities back in their own countries. TEEN aims to empower people in these three countries to achieve a sustainable society by raising environmental awareness. At the political level, China, Japan and Korea sometimes lock horns on the territorial or historical issues, but the TEEN members who care for the Earth share a strong bond despite the circumstances and tackle environmental education to overcome various problems. So far, the three countries have jointly developed a database of organizations providing environmental education (English version) and environmental education materials for children and carried out exchanges of young leaders implementing environmental education. This book is also one of such joint efforts among China, Japan and Korea.

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