

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

Table of Contents

04 Prologue

Living in Harmony, Sharing One Destiny

07 AT and IP Sharing Cases

01. Korean Agungee Debuts in Guatemala

02. A Cozy House Built in Nepal

03. Brand Identity Takes Root in Cambodian Farms

04. AT makes farms in the Philippines prosperous and fragrant

- Ylangylang oil extractor

05. Bicycle-operated Pump: New Irrigation System Enriches Farms in Papua New Guinea

06. Renovation of Tarlac's Regional Brand

07. Bolivian Royal Quinoa

08. Ache Patchouli regain its old reputation by AT from Korea

09. AT oil separator makes Vung Tau City cleaner

10. Korean Technology goes into Uganda, the largest farm in Africa

11. Creating Sri Lanka's signature coconut brand

12. Smart winter greenhouse brings greener dining table for Mongolian children

13. Ma Chau traditional silk spreads throughout the world by AT (Appropriate Technology)

174 Epilogue

Sharing Makes the World a Better Place

176 Appendix

What Is the IP Sharing Project?

Prologue

Living in Harmony, Sharing One Destiny

In Sino-Korean characters, the word “human” is written “人間” (인간, Ingahn). However, the word “ingahn” does not literally mean “human being.” More specifically, it means “between people.” So why say “between people” when we actually mean “humans,” or “人” (인, In)? The Korean language seems to suggest that human beings cannot live alone and must be viewed as part of a larger community. This is symbolized in the word, “人” which represents two people leaning against each other.

Think of it in terms of how our bodies work. Our eyes come in pairs in order to provide us with accurate depth perception. Though we have only one nose, it contains two separate nostrils that function together in harmony. We generally have ten fingers and toes to help us move around and engage in creative tasks. And a single brain cell is not powerful enough to generate innovative inventions all by itself. It takes approximately 14 billion of these cells to form what we call the brain—the organ that allows us to utilize our five senses, demonstrate our intelligence, and display our imaginations and creativity.

That’s just the way life is. As a general rule, teams function better than individuals. This same principle applies to global-level events. After the Korean War, which tore our nation apart and destroyed our livelihoods, Korea was provided physical and financial aid from many different countries around the world. It is thanks to such help that we now stand where we are today.

As Korea continues to get stronger and richer, we are reaching out to other countries in need of similar help.

The IP Sharing Project is an important example of the kind of help we are striving to provide. This is not simply a one-time contribution, but a sustainable, long-standing project that will support LDCs (least developed countries) and developing countries on standing on their own two feet.

There is a Korean wisdom quote that says, “Don’t think about how to give money to your children, teach them knowledge instead.” This maxim emphasizes that the real job of parents is to transfer knowledge and skills so that their children can survive and flourish on their own.

As we are neighbors living on this small planet we call Earth, every person in the world is connected to each other in some small way. This being the case, we should reach out to each other in times of trouble and share ideas on how to become more prosperous. This is the essence of our IP Sharing Project.

Our sincere gratitude goes out to everyone who has joined and/or provided support for this project. Each and every one of you are part of a great cosmopolitan effect that contributed to bringing a better life to people all over the world.

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

KOREAN INTELLECTUAL PROPERTY OFFICE

01

| AT and IP Sharing Cases |

Korean Agungee
Debuts in Guatemala

KOREA INVENTION PROMOTION ASSOCIATION

01

Korean Agungee Debuts in Guatemala

Re-kindling the Lives of Guatemalan Children with Korea's Traditional Furnace, the Agungee.

When you think of Guatemala, coffee is probably the first thing that comes to mind; specifically, images of endless fields of coffee plants similar to an Italian vineyard. But, there is a lot more to Guatemala than just coffee. Another popular Guatemalan crop is corn, and it is corn that provides the main ingredient for the country's staple food, the tortilla. A tortilla is a type of flatbread made from finely ground maize. It is served after first being roasted in an oven. It is quite different from the bread Koreans are familiar with. As often as Koreans eat rice, Guatemalans eat tortilla for nearly every meal. But, there is a big problem that has reared its head across the country: namely, the poor ventilation found in a typical Guatemalan kitchen. Such a lack of ventilation results in high levels of indoor cooking smoke, which has proven to be the culprit behind such diseases as childhood asthma. In fact, it drove up Guatemala's infant mortality rate to the level

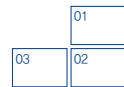
of being one of the highest in the world. The World Health Organization (WHO) said, "Indoor cooking smoke is even more harmful than air pollution. In fact, diseases associated with pneumonia or asphyxiation (lack of oxygen) account for 49% of the total infant diseases in Guatemala."

Not all Guatemalans can afford to use gas stoves or electric ovens, and instead, the typical Guatemalan household uses firewood for cooking. But the majority of poor people in Guatemala do not even have a proper fire-operated stove. They simply pile up some stones and put a piece of wire mesh on top which constructs a makeshift fire pit for heating food with the burning wood below. Getting firewood is no picnic, and this forces locals to gather up any bit of wood they can find. Most of the nearby mountains and fields are patrolled by vicious armed guards who drive the poor people away. To get some wood, these people often have to walk for hours. Ultimately, they just use any piece of wood they can find—including ones that are not meant to be used as firewood. This makes the smoke problem even worse as it releases into the air harmful gases and substances that not only cause respiratory disease, but with long-term exposure, can even kill babies who have weak immune systems. In Guatemala, firewood is a financial burden even for the relatively wealthy. While their average income hovers around USD 245, money spent on firewood accounts for USD 93—about 40% of their total income. This also caused a serious reduction to their quality of life. It was a humanitarian emergency that required an immediate response.

Fortunately, the people at Good Neighbors, a Korean NGO, are working hard to address this problem. In fact, it was not long ago that they started manufacturing and distributing models for more advanced fire stoves across the country. Visits were made to the households of some Guatemalan families and it was confirmed that the improved fire stoves provided by Good Neighbors are actually much safer and emit less smoke than their

makeshift counterparts. However, they also had some drawbacks: their size and weight made them cumbersome, they required nearly 20 days for installation, and they were relatively expensive.

Eventually, Good Neighbors requested that KIPO and the Korea Invention Promotion Association (KIPA) address the disadvantages of their fire stove model. As a government organization that has proactively spearheaded AT-related projects since 2010, KIPO is regarded as somewhat of a pioneer in this field, whereas KIPA is doubtlessly the most prominent Korean organization working in the arena of invention.



1. This is what a traditional makeshift fire stove in Guatemala looks like; you pile up some building blocks or stones, then put a piece of wire mesh on top of the pile to cook on by using the heat from the burning wood below. Since there is no ventilation, the smoke fills up the whole house.

2. A house full of smoke from cooking

3. The alternative stove from Good Neighbors



This is an image of an existing oven model that was supplied to the local residents. The oven model was convenient and very practical as it provided the residents with more space to work. However, some of the disadvantages is that it was very costly, heavy, large and difficult to install.

KIPO and KIPA searched for an expert who could troubleshoot issues pertaining to Good Neighbor's fire stoves. The person that was chosen was Seung-hoon Lee, the CEO of Toga Korea, a business that specializes in fire stove manufacturing in Korea. Mr. Lee was invited as a "technology partner" on this project. As one of the world's foremost experts on fire stoves, he is well-known for inventing the modern Korean fire stove using technology from Korea's traditional fire stove, the Agungee. Since he was capable of customizing his fire stoves to fit user specifications, he was the perfect choice for developing the type of stove that Guatemala so desperately needed.

A delegation composed of people from KIPO, KIPA, and Good Neighbors accompanied Mr. Lee to Guatemala for some on-site inspections. There were three main objectives in developing the new fire stove: 1) greater mobility, 2) easier and more time-efficient installation, and 3) lower production costs to make it more affordable. It was believed that if the existing stoves were improved and production costs were lowered, they could eventually be disseminated across the entire country.

Happiness in Extreme Environments

It was almost the end of July, and as this is the peak time for summer vacation, getting tickets to Guatemala was not easy. Even worse, there were no direct flights from Korea, so a transfer in Los Angeles was mandatory; it was a long journey indeed. It was hoped that these difficulties were not bad omens representing impending trouble.

Further, shortly prior to landing, some unfortunate events had occurred that caused some concerns. Although such difficulties arose, they were shared by everyone in the company and even created a sense of team unity.

Without allowing sufficient time for jet lag to pass, on-site inspections of a local factory and supplies market were conducted. It was obvious that one week did not afford much time to figure out what kind of materials and supplies were available, to what degree we could improve the existing stoves, and how serious the situation in local households were. Things were even worse for Mr. Lee as he was under a lot of pressure to come up with a design for the new stove.

To find out what kinds of stoves were being used in the various types of housing, inspections both in suburban and urban areas were conducted. To everyone's surprise, conditions were even worse inside the city; the fact that living quarters were more separated in suburban areas meant that these places were better ventilated, while on the other hand, the downtown area appeared to be an economically distressed urban zone. Homes were compacted close together without proper disposal of domestic sewage and garbage. As a result, children were exposed not only to diseases associated with indoor smoke, but to water-borne diseases as well. It was sad to see such suffering.

Mr. Lee says, "I can never forget the faces of those innocent kids who were smiling even in such harsh conditions. It was so heartrending...I couldn't even greet them, or ask them "How are you?" As soon as I saw them, all I could ask was, "Are you OK?" There was smoke coming from one of the homes there; apparently, someone was baking tortillas. Inside, there was so much smoke that it was hard to breathe or see properly. A slender housewife battled the heat and smoke while her children awaited their meal. This caused great concern with respect to the health of everyone who used a traditional stove in their home. In fact, anyone would have been consumed with worry after witnessing the problem firsthand. As the realization came that the harmful smoke was truly a pressing issue that needed to be addressed, it was determined that the problem must be



On our visit to local households, it was really impressive how the children we met seemed so happy even in very harsh living conditions.

fixed one way or another, even if issues like high production costs forced us to give up on plans for a new, alternative kind of stove.

The Best Rather Than the Latest

Some of the households that were visited used stoves provided by Good Neighbors or a different company. Both performed more well in reducing smoke emissions compared to their traditional counterparts. However, both shared the same drawback: they were too large and heavy to be portable. In addition, the stoves were comprised of bricks and cement that made direct contact with the bare ground causing them to be easily affected by changes in the weather. The rainy season, in particular, made it difficult to use as the water soaked the firewood and prevented it from catching fire. Making things worse, the smoldering of the wet firewood increased the smoke emissions even further.

Therefore, three goals for developing an alternative stove were set: 1) greater portability, 2) protection against outside moisture, and 3) low production costs in order to make it more affordable.

After inspections were complete, work began in earnest to design the new stove. At the same time, many different experts and scholars from various fields were asked for their advice.

“Since the stove has to fit inside small-sized kitchens, it is important to stick to a simple and streamlined design. This would also ensure easier installation and greater portability.”

“The existing alternatives were mainly built out of bricks and cement. However, such materials prevent them from ever being small or lightweight. Furthermore, they only support a single burner. This is simply not enough



A company was operating the fire stove production factory. Their stoves were mainly made of cement and building blocks, which is why they were too heavy to move when their users had to relocate during the rainy season.

since most households use two burners at the same time; one for tortillas, and the other for steamed beans.”

“Let’s start by figuring out the proper materials.”

“If we used steel or iron, we would need a factory or facility capable of manufacturing the metal according to our specifications.”

That was an important point: the capabilities of the local manufacturers had to be considered. So, research on two different prototypes (one made of metal and the other made of stone) began.

As Cheap and Efficient as Possible Without Infringing on Any Existing Patent Rights

Subsequent to the trip to Guatemala, various tasks were assigned to the various members of the team, being sure to take into consideration their particular expertise and role. Mr. Lee was in charge of designing both the actual prototypes. It was KIPO’s job to find the right type of patented technologies that would help enhance their heat efficiency.

“As a result of searching through our patent data, we narrowed our options down to three final candidates.”

“All three patents shared the same core technology with only minor variations. After utilizing the commonly applied technology found in the first of the three patents, we then worked to design around any possible infringements found in the other two.”

The discussions, led by KIPA Manager Joo-hyun Ryu and a Korean patent

attorney Yu-mi Kwak, continued and involved numerous consultations with scholars and experts from various fields. The types of questions that were put to the team were: What is the best option? What should the new stove be like? What is the ultimate purpose of this project? After much thought and deliberation, the metal stove prototype was chosen. This decision was based on the project’s ultimate goal of improving the health of people in Guatemala. It was important to come up with the cheapest possible option in order to make the stoves more affordable with the result of disseminating them to a large number of families.

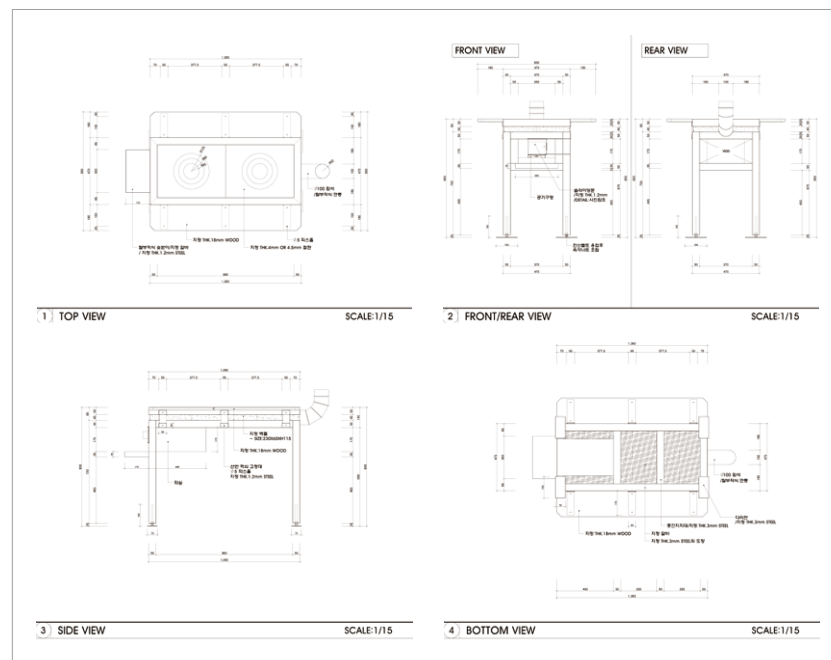
It was decided that the new stove would be made out of two primary materials. It would be equipped with a firebox to contain the burning firewood, and this firebox would be composed of ceramic material manufactured by baking the local yellow clay found all throughout Guatemala. The heat from the ceramic firebox would then be transferred to the parts made of metal, just like the original determination. The new stove was designed as a single piece, and it included a smoke chamber to safely release the smoke. Then came time to produce the prototype and begin the most important phase of the process: the performance test. It was a top priority that the stove was made with materials and parts that could easily be obtained locally. During the first on-site inspection in Guatemala, a list of available parts and materials was made; a move that saved a great deal of time later on. Fortunately, everything on the list was available in Guatemala.

Without the on-site visits, it was highly likely that the new stove design would have required parts that could not be obtained locally. That being said, the final prototype ended up being perfectly suited to local conditions.

If you have access to all the best materials, it is relatively easy to make a fancy, cutting-edge product that performs exceptionally well. The hard part is creating the best possible product when faced with real-world restrictions. Only when the results proved to be practical could we proudly say that we accomplished something truly meaningful.

Prototype Test: The Die Is Cast

Testing of the prototype stove was conducted in strict accordance with the performance standards put forth by the US Environmental Protection Agency (EPA). Since Mr. Lee's fire stove factory was in Yeosu, it was decided that the prototype would be brought over to Seoul for testing.



This is the blueprint for the finalized prototype stove. It was designed to be as simple as possible, in consideration of the living conditions for locals.

The test took place on the rooftop of the building where Mr. Lee's office was located. Although this building was in the middle of the city, the act of standing around a fire stove under the darkening evening sky was reminiscent of a night in Guatemala. The team held a strong sense of unity as the hope that the project was ready to enter the final phase reached its peak.

The new stove proved a great success. After some adjustments, it achieved greater heat efficiency than that of the existing models used in Guatemala. Its production cost was also about USD 30 lower, thereby making it accessible to a wide number of households.

Since then, usage of the new stove has continually spread, and additional improvements have been made.

"I was especially impressed by the work ethics of young Koreans at Good Neighbors," said Mr. Lee. "I admire their passion in coming all the way to Guatemala to help others, while most people their age are out simply enjoying their youth."

The world is full of different types of people. While some believe in egoism, others believe in altruism. Some try to gain as much as they can, while warm-hearted people are more concerned with sharing. Mr. Lee is indeed the latter for he shared his unique expertise with the people of Guatemala and helped to improve their quality of life.

"The typical ideas of sharing are making donations or doing volunteer work, so I am grateful for the chance to learn about AT and how I can share my skills and expertise with others. I hope the new stove I created will become widely used, thereby ensuring better living conditions for parents wishing their children to grow up healthy."



The first model of the stove was developed by KIPO in Guatemala.



An additional stove with improved technology and design was developed by Good Neighbors Guatemala.

02

| AT and IP Sharing Cases |

A Cozy House Built in Nepal

02

A Cozy House Built in Nepal

With its mild climate, the Terai plains is a great place to live. However, the region experiences great fluctuations in weather temperatures, emphasizing the need for reliable house insulation against conditions such as wind and heat.



AT Meets Nepal

Nepal is bordered on the north by China and on the south by India, with the Himalayas running right through the center and basically dividing the country into three parts: a mountain region, a hilly region, and a plain region locally known as “Terai” which means “foothills.” The Terai plains has warmer weather than its hilly counterpart (where Kathmandu—the country’s capital—is located) making it particularly attractive to many poor people who lack even a proper roof over their head.

To help these people attain sufficient housing, Habitat for Humanity Nepal (HFH Nepal)—an NGO—has been working since 2006 to build them shelters. This project is more than just a simple give-away—HFH Nepal offers microcredit so residents can pay back the construction costs, free of interest. Helping locals find housing and work in order to secure a basic livelihood allows them to put more focus on their jobs and their children’s education. That is why HFH Nepal’s projects are so welcomed by Nepalese communities.

However, this does not mean that the problem was completely solved. For one thing, there were difficulties caused by the dramatic fluctuations in outdoor weather temperatures—something experienced more keenly on the Terai plains than throughout the rest of the country. In addition, the housing provided by HFH Nepal gradually deteriorated due to problems with heat insulation and condensation which caused additional maintenance issues. Eventually, HFH Nepal requested KIPO’s assistance in conducting a major troubleshooting effort.

After readily agreeing to give them a hand, the tasks involved were divided up; it was KIPO’s job to identify the right kind of AT to neutralize the problems with the provided housing, while HFH Nepal was in charge

of locally promoting the new technology and encouraging residents to take advantage of it. Since the team was almost completely in the dark about the situation in Nepal, HFH Korea’s advice was requested. Professor Youn-taik Leem of Hanbat National University was also asked to join in the search for the right form of AT to implement.

Terai Plains: Paradise for the Poor

The first on-site inspection of the local housing situation was conducted in the Jhapa District of the Terai plains. The shelters in this district were built in a purely traditional style, different from that of the HFH Nepal-pro-

The walls and fences were made from bamboo and straw. They were simply not enough to protect residents from storms.





The local shelters were tin-roofed, offered virtually no insulation against heat, cold, and outside noise.

vided shelters. The residents here lived in tin-roofed homes with bamboo walls that were plastered with mud from the nearby river.

These tin roofs were nothing but thin metal plates that provided almost nothing in the way of sound or heat insulation, leaving the residents unprotected from the dramatic weather swings that often occurred. Although the mud that covered the walls seemed like a pretty good choice in terms of adhesion, it had been applied without any reinforcement or additional treatment. As a result, the mud walls were rapidly deteriorating due to strong winds and the seasonal fluctuations in humidity.

However, the shelters in Jhapa District were much better than those of Biratnagar, which is located in the Morang District. Shelters there had straw walls with bamboo frames, thereby offering hardly any protection from the wind. What's worse was that rain would eventually cause the straw to decay, thereby necessitating constant maintenance and repair. Although some walls were plastered with mud or cow dung, overall, the situation in Biratnagar seemed significantly worse than that of the Jhapa District.

There was a superior house made of reinforced concrete and logs. Mr. Lilo Rahban, the owner of this fancier home, seemed very proud of his residence. However, in one part of the house, there was one mud-plastered wall connected to a cement one - leading to the question of whether he had run out of funds before construction on the home had been fully completed.

After the traditional style of local housing was analyzed, a visit was made to those shelters built by HFH Nepal. Boasting separate porches and proper toilets, these shelters appeared a lot more modern. The residents were satisfied with them too. They especially loved that they offered separate rooms for parents and children since the traditional style had everyone living together in a single room.

Nevertheless, there was much work to be done; for example, the serious condensation problem during the winter, the glassless windows making for easy intrusion, the ever-expanding cracks in the bamboo and mud which provided access points for bugs and rain water, and the deterioration and eventual collapsing of the walls themselves.

The on-site inspection of the region revealed three problems that demanded the most attention: poor insulation, cracks in the walls, and con-

densation on the tin roofs. The most pressing issue was the lack of insulation. According to Korean construction standards, walls must be at least 25 - 30 cm thick in order to provide the minimum amount of insulation expected from any building.

The best solution would be to adopt steel frames and thick cement walls. But the Terai plains does not offer easy access to a large supply of these kinds of construction materials. Furthermore, tariffs have increased the price of automobiles to double or even triple that of the costs in Korea. As a result, transporting such materials would further serve to make these materials cost prohibitive for locals.

AT Research on Locally Available Materials

The traditional materials used in local construction—mud, bamboo, and straw—were all environmentally friendly. Without any reinforcement, however, walls made from these materials lacked durability and easily cracked or got washed away during the rainy season. Therefore, the optimal solution was going to be found by conducting extensive research on these traditional materials.

The structure of the existing walls was simple: bamboo plastered with mud. Since the walls were only 2 - 3 cm thick, they provided very little in terms of insulation. In reality, they needed to be at least 25 cm thick to be in any way effective. In addition, they required yearly maintenance since the mud was easily washed away by the rain. To address this problem, initially, the idea of packing some straw inside the bamboo frame was proposed. However, the idea was abandoned once it became apparent the straw would quickly decay from contact with rain.

Another solution involved embedding wire mesh into the walls to make them more durable. But, it was discovered that the wire mesh would drive up costs too high. The third idea was to use locally-manufactured bricks, but these turned out to be as expensive as they were sturdy—not a desirable option for the locals. Ultimately, the conclusion was to use bamboo strips to pad out the mud-plastered walls thus giving them greater durability.

The pillars that the locals used in their walls were made from untreated pieces of bamboo that left gaps where wind and raindrops could find their way inside. So, smaller strips of bamboo would be used but they would be affixed to the wall using wire, thereby closing up the gaps.

The final concern was about the roofs. The pieces of tin the locals used were so thin that, to the people inside, the sound of rainfall hitting the roof was like the beating of a drum. In addition, the huge fluctuations in temperatures caused serious condensation to form on those roofs.

Applying some mud or cement to the roofs would help, but the bamboo walls appeared too weak to support the additional weight, and this prompted a more cautious approach. In consideration of both the cost and durability of the shelter as a whole, the most plausible solution was to weave a bunch of straw together as to create some sort of padding that would help support the roof. Since this padding would be detrimentally affected by direct exposure to such external factors as the weather, it was beneficial to place it beneath the roof as the roof would afford some protection for the padding and thereby make it a little more resilient.

After conducting much research and numerous tests, three different housing prototypes were built. The first looked very similar to the bam-



An experiment with a mixture of local mud and straws to replace cement in making wall surfaces more durable.



1. As an alternative to expensive bricks, we tried mixing the local mud with various other materials such as straw, coconut stems, and jute yams (akin to Chinese yams). Of all these combinations, the mixture of mud and jute yams generated the most durable bricks.
2. We decided to pack straw padding into the tin roofs. This simple act caused a dramatic improvement in terms of insulation.
3. Using bamboo strips, we took the flat, plate-shaped straw padding and packed it under the roofs, making sure that the two of them remained easily separable in order to make maintaining and repairing the padding much easier.



boo-walled shelters provided by HFH Nepal. The only difference was that this design allowed for straw padding to be inserted underneath the roof. The second prototype had thicker walls, a double-layered bamboo roof, and straw padding. The final prototype employed mud bricks for attaining the greatest resilience and insulation.

As soon as construction of the prototypes were finished, local residents and wannabe architects were invited to attend a special event for promoting the concept of AT and generating feedback on the proposed designs for improved housing. People showed interest in the second and third prototype designs, but it was the first prototype design that really stole the show.

Although the locals certainly approved of the idea of reinforced walls, they had to consider the additional cost. Therefore, they preferred to settle for something cheap and familiar, even if the more advanced and exotic options offered greater benefits.



Construction of a house made from mud bricks—one of our three prototype homes.
To close the gaps between the mud bricks and the bamboo pillars,
we filled them in with thin pieces of bamboo strips and kept them in place using wire.



KIPA patent attorney Yu-mi Kwak (left), a local worker (middle),
and Ms. Rashumi, who served as the director of the worksite (right)

But that is not the end of the story. HFH Nepal selected some families to try out each design by living in the model homes for a certain period of time. As word of mouth about the advantages of living in these newly-designed homes began to spread, enthusiasm for these prototypes became more and more widespread. Though it will take time, it is expected the newly designed housing options will grow in popularity and be in very high demand sometime in the not-too-distant future.

Rashumi, the Nepalese Architect, Earns a Chance to Study in Korea

A young, charismatic local architect named Rashumi assisted with the on-site inspection and durability tests. She was very friendly and cooperative. In fact, she was the one who secured the equipment needed for conducting durability tests on the new bricks. Even after the team's departure, she continued to check the heat efficiency of the model houses and compare the results with their HFH Nepal counterparts. She was a very reliable partner who contributed greatly in bringing this project to a successful conclusion.

Impressed by her passion for her work and her dedication to becoming a better architect, Professor Youn-taik Leem from Hanbat University—our AT developer for the project—offered her the chance of a lifetime which was to study architecture in Korea.

"It's already been 2 years since I first came to Korea to study at Hanbat University. I'm now finishing up my last semester and am working on my graduation thesis, with plans to return to Nepal in February of next year. But I hope to always stay in touch with Professor Leem, for I owe him so much."

Upon returning to Nepal after completing her studies, she said she was grateful for the many ways in which she has benefitted from the AT Sharing project; working on this project has led to exciting opportunities for her to further her career. It is hoped that her newly acquired knowledge and experience will prove valuable for her future work, both in Nepal and throughout the rest of the world.

03



| AT and IP Sharing Cases |

Brand Identity Takes Root in Cambodian Farms

03

Brand Identity Takes Root in Cambodian Farms

Cambodia Awakens to the True Value of Brand Identity

As long as capitalism reigns, people will never be free of advertisements and product marketing. Advancements in internet and media technologies have resulted in an endless stream of commercials, day in and day out, with each ad promoting a specific brand of product. The notion of “branding” is commonplace to people living in developed countries, yet it is still a novel concept for those living in places like Cambodia where the phenomenon of advertising has yet to take hold. However, even Cambodians are well aware that certain brands have a higher market value than their generic counterparts, and this knowledge has caused a gradual desire to develop their own name-brand products.

Two particular instances of this newfound demand for brand development recently came from the Svay Rieng and Pailin districts located, respectively, a 3-hour drive and a 7-hour drive from Cambodia’s capital city,



A typical farm in the Svay Rieng province.

Phnom Penh. Each district boasts a unique staple agricultural product: for Svay Rieng, it is red rice, and, for Pailin, it is a tropical fruit called “longan.” Each district was working to sell its product, both at home and abroad. But there was a big difference between the two districts. Red rice from Svay Rieng was being exported to Thailand at the ridiculously low price of USD 0.35 per kg, which is 30% lower than what the product originally sold for back in 2009. On the other hand, the added value of Pailin’s longan resulted in it being sold at a much higher price of USD 1.2 per kg. This eventually

caused a huge economic gap between the two districts—a gap that was apparent in terms of quality of life and awareness of the overall importance of modern branding strategies.

Aware of famous brands that exist outside Cambodia, Pailin residents wanted to employ a similar branding strategy for their longan. As a matter of fact, they had already considered what they needed to do in order to introduce and then utilize their brand. Their situation was a whole lot different from that of the Svay Rieng district, which slightly reminded us of a rural Korean village circa 1970. Here, low-income residents vaguely dreamed about increased profits, but were completely in the dark as to how they could develop their own brand of red rice. As a result, it was immediately noticeable that the job of brand development would be much harder in Svay Rieng than Pailin; especially since the goal was not only to launch a new brand, but also to help out with branding and this is a more advanced concept which incorporates advertising- and marketing-related activities.

Interviewing people from farmers' co-operatives in both provinces, and then sitting down to determine each province's specific needs were the first steps. Just as with other projects, on-site inspections and in-depth interviews with stakeholders were fundamentally important for creating an appropriate brand development strategy, especially since people often have trouble visualizing and articulating exactly what it is they want. Even if they are able to articulate their needs, they may choose not to. Sometimes, admitting a specific need can feel like revealing a weakness—something our human survival instinct encourages us not to do. Therefore, interviews were often conducted via indirect questions. For example, interviewers would ask what kind of image they thought should be associated with their product and how they felt about certain ideas, rather than asking them directly what they want. In this manner, answers were



Above: Group photo taken with personnel and farmers in Svay Rieng.
Below: Group photo taken with personnel and farmers in Pailin.



inferred without wounding anyone's pride.

Red Rice (赤米) vs. Red Jasmin

Red rice is an unusual crop seldomly found in other parts of the world. Globally, red rice is produced in very limited amounts. It appears red because of a pigment called anthocyanin; it tastes sweeter than typical white rice, and its soft texture further enriches the eating experience. In addition, red rice has a variety of benefits, including high amounts of fiber and iron. However, farmers' co-op in Svay Rieng were not utilizing these benefits as a competitive marketing advantage, and instead they were limiting their role to that of collecting the harvested crop and selling it on behalf of the farmers. In order to export the red rice, it was forced to rely on assistance from the Federation of Farmer Associations Promoting Family Agriculture Enterprise in Cambodia (FAEC). All in all, it was not a properly-functioning co-operative, and it even lacked a logo or symbol with which to represent itself. According to locals, nearly all transactions pertained to pre-harvest sales of red rice between individual farms and Vietnamese importers.

There were two types of red rice being harvested in the local farms: polished rice for domestic consumption, and half-polished rice for exporting. Vietnamese buyers, the region's main avenue of exporting, prefer the half-polished type due to reasons involving quality assurance. After arriving in Vietnam, the rice was re-polished and labeled with a Vietnamese brand so that it could be exported to the US. As one of Cambodia's neighboring countries, Thailand produces its own brand of red rice called "Red Jasmin." According to an official from Cambodia's Ministry of Commerce, Cambodia's lack of branding is causing it to lose ground to Thailand in the red rice market, despite the fact that Cambodian red rice is of much higher quality than its Thai counterpart.

The names/images of other country's red rice brands were either based on where the crops originated, or they used keywords like "tiger," "dragon," and "organic" to emphasize the nutritional aspects of the product. Although people at the Svay Rieng co-op told us that the locally grown red rice has a unique healing effect and superior quality resulting from their time-consuming method of farming, such statements were not scientifically proven and, therefore, could not be highlighted as brand elements. At first, basing the brand image on Svay Rieng's pristine environment was proposed, but further consideration led to abandon that idea. Since Cambodia has never been known for its agriculture, it didn't make sense to focus on the rice's country of origin, especially from an export standpoint. That left the most difficult approach, that is, using abstract language.

When choosing a brand name for a particular kind of painkiller or cold medicine, people often resort to basing the name off of a certain ingredient—this is the easiest and most straight-forward way to promote their brand. Another way involves emphasizing the anticipated effect from using the product—"Fat Down," for example. The choice to use abstract language made it extremely difficult to come up with a good, marketable name. A good brand name was essential for differentiating our product from other similar products on the market, but a poorly thought-out brand name can cause confusion and send a mixed-message to consumers.

Once there was a basic strategy, it was time to deal with the demands of the locals. For export-related reasons, the Svay Rieng co-op desired to have an English brand name, so the job boiled down to finding an English expression that would accurately represent the red rice farmed in the Svay Rieng district. The expression needed to be simple and intuitive, and it would have to appeal to the Vietnamese buyers who were the red rice's primary exporters.

After several rounds of keyword extractions, combinations, and word-formations, 19 potential brand names were created. After consulting local specialists from a patent attorney's office, the number was narrowed down to five which were then shown to the respective Cambodian counterparts.

RUBIA
SVAY RIENG RED RICE

ANKORUBY
RED RICE FROM SVAY RIENG

CROCO
SVAY RIENG RED RICE

RED CROCO
RICE | FROM
SVAY RIENG

RUBY HEART
SVAY RIENG RED RICE

From their response, it seemed they preferred natural-sounding names with meanings that people would be able to grasp intuitively. With that in mind, the whole process was repeated and possible candidates, like "Farmer's Heart" and "Red Ruby Rice," were created. However, a patent attorney stated that the chances of successfully trademarking these names were very slim, not just in Vietnam but in most countries around the world. Therefore, after further consultations, the final decision was to name the brand "NatuRed."

Once the naming was complete, it was time to work on designing the brand logo. A design that reflected on Svay Rieng's beautiful scenery, fresh air, and calm fields of grain was desired. After getting feedback from design experts, numerous modifications and adjustments were made.



The final draft of the symbol design

Longan, the Priceless Fruit Carrying the Local Economy Forward

Pailin had distinct advantages over Svay Rieng, especially in terms of average household income and brand awareness. Like Svay Rieng's red rice, however, longan is sold by the kg—which gives the two districts something in common. Since longan is considered a luxury fruit, it has great potential for increasing in value if properly branded. It also has excellent storability to the point that Pailin residents were still eating the previous year's harvest. That is why Thai traders were importing it and then re-labeling it in order to sell it to China. Developing Pailin's own distinct longan brand would play a critical role in raising incomes for local farmers. Once the district succeeded in launching its own brand, Pailin would be able to export its longan not only to China, but wherever there is demand for this tropical fruit.

According to market research, there were no prominent competitors in the longan market. Previously established longan brand names like Dragon Eye (a direct translation of the Chinese word for longan), Pigeon, and Lucky were too ambiguous to stand out to consumers. In fact, such names were so abstract that even marketing experts would have trouble associating them with fruit. Therefore, it was agreed that, first and foremost, the brand name for Pailin’s longan had to be clear and straightforward so consumers would immediately know what kind of product was being advertised.

The work began with a brainstorming session. In Chinese, longan is written “龍眼,” which translates as “dragon eye.” The name originated from the fact that, for centuries, longan was given as an offering to Chinese royal families. In addition, ripe longan is a golden yellow—a color associated with emperors and kings. Considering that the primary demand for longan comes from China, it was probably a good idea to keep such characteristics in mind when coming up with a brand name, which should also somehow reference the unique geography of the Pailin district.

Potential brand names were derived from combining Pailin’s regional characteristics with the one-of-a-kind aspects of longan, such as its rich color and taste. In order for people to grasp its meaning quickly, the brand name had to be based on a simple English expression or intuitive word-formation. Eventually, a compilation of a list of possible candidates, with six or seven entries per category, was created.

Trademark registration is absolutely essential for ensuring that brands receive proper legal protection. Since the potential brand would be shared by every farmer in Pailin, an application for a collective mark was required. Therefore, KIPO reviewed the list of potential brand names and determined that five of them could be properly trademarked in Korea. After col-

Direction 1. REGIONAL	Direction 2. SPECIES	Direction 3. CONCEPTUAL
GOLDEN HILL PAILIN LONGAN	GOLD EYE PAILIN LONGAN	FRUDO PAILIN LONGAN
LIN'S BELL PAILIN LONGAN	GOLDRACO PAILIN LONGAN	DOLCE VITA PAILIN LONGAN
HILLSWEET PAILIN LONGAN	DRAGOLD PAILIN LONGAN	VITADIA PAILIN LONGAN
GOLDIA PAILIN LONGAN	GOLDRICH PAILIN LONGAN	SUNDOR PAILIN LONGAN
MELOPIA PAILIN LONGAN	LONGSWEET PAILIN LONGAN	HELLO, MELLO PAILIN LONGAN
DELIGEM PAILIN LONGAN	MELONGAN PAILIN LONGAN	
	BELOMEL PAILIN LONGAN	

The list of brand name candidates

lecting opinions from the respective Cambodian counterparts, in addition to considering the possibility of eventually registering the trademark in China, the name “Delilong” was selected.

Once the brand name was decided, it was time to design the logo. A variety of symbols and images that could be associated with Pailin, longan, and Cambodia were available; for example, motifs based on longan’s roundness and golden hue, as well as images reflecting longan orchards and Cambodia’s natural environment. Brand logos can be either abstract or straightforward, depending on what kind of marketing strategy the developers come up with. As a result of multi-faceted efforts, seven very different possible logo designs were created and then consulted upon with

various brand design experts, including Hongik University professor Keon Na and BRN Christmas CEO Jae-il Jang. Ultimately, a yellow-gold logo that reflects the countryside of Pailin and gives off a sense of eco-friendliness was chosen. The Pailin residents loved the idea, so the trademark was filed for registration.



The final draft of the brand name and logo design



The brand logo is now in actual use in Pailin. The longan being exported is now labeled under the brand "Delilong," the "fruit" of our efforts.



Korean IP Expertise Proves Useful in Cambodia

Having successfully guided the local farmers in effectively branding their longan to generate added-value, IP Sharing in Cambodia was complete. The rest was to be left in the hands of the Pailin residents: from registering the brand name and logo as trademarks to engaging in advertising and other marketing-related activities. Although there was a large economic gap between the districts of Svay Rieng and Pailin, residents of both areas agreed that having their own brand could greatly increase their incomes and enrich their lives. Cambodia's effortless acceptance in acknowledging the value of branding, as well as their passion to learn more about this process was impressive. All things considered, the task of developing a brand for each of these districts went rather smoothly.

After the months-long brand development project came to an end, a seminar for both local and government officials from Cambodia's Ministry of Commerce was held. In this seminar, there was a presentation that outlined how the final version of the brand name and logo came into being, showed how locals can make use of them in the years to come, and gave real-world examples of the power and value of brand-names. Also, viable marketing strategies for the launched brands were introduced.

We all know that no tool is useful if it just sits there. A tool only gains significance by being used. It is our sincere hope that the tool developed for Cambodia will prove valuable by helping to enrich their lives.



After our brand development project came to an end, we held a seminar for farmers and government officials in the Svay Rieng and Pailin districts.



04

| AT and IP Sharing Cases |

AT makes farms in the Philippines
prosperous and fragrant
- Ylangylang oil extractor

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

04

AT makes farms in the Philippines prosperous and fragrant - Ylangylang oil extractor

A small municipality, located 200 km outside Manila, Anao is known for producing aromatic oil that is extracted from flowers of the local tree, Ylangylang. By processing this oil in various different ways, Anao has enjoyed many economic benefits thanks to its local trees. Since the region's weather is perfect for growing ylangylang trees, the Department of Agriculture in the Philippines began to supply seedlings throughout Anao in 1990's. Ylangylang became one of the region's most significant source of income, and major foundation for the local economy. However, the oil extractors they were using started to be worn-out leaving only one out of three original extractors available at time of the project.

Beginning the Journey to the Philippines

In 2013, KIPO and KIPA, in partnership with the Asia-Pacific Economic

Cooperation (APEC), decided to jointly develop AT for both the Philippines and Papua New Guinea. As a result, KIPO and KIPA dispatched a group of their staff including Yu-mi Kwak, Korean patent attorney and Tae-sung Kim, CEO of THINKTOP R&D to the Philippines for the project. Mr. Kim could never imagine himself going to the Philippines to participate this type of project. He had a doubt even when we went to see him in Wonju, where his factory is located, in search of Korean oil extractor specialist. He had feelings of excitement and burden about the fact his technology and ideas needed overseas.

Anao requested the renovation of an oil extraction facility. Generally, aromatic oil is extracted through distillation or steaming. But, the oil extractor being used in Anao was too old and worn out. The fact that it used firewood for fuel made it basically useless to extract high quality oil. Furthermore, Anao had only three oil extractors, two of which were unavailable due to serious deterioration. This was inconvenient as Anao is composed of 18 administrative divisions, otherwise commonly known as Barangays¹⁾, and these small councils had to collect flowers and deliver them to the one site where the extractor was located in order to extract oil. Just as espresso tastes and smells better when extracted at a higher temperature and pressure, the quality of ylangylang oil increases with the speed of the extraction. However, back then, the people of Anao faced problems with storing and transporting the distillate, as well as with the low efficiency of the extraction process itself. Officials from the municipal government were well aware of these problems. So naturally, they requested a new kind of extractor that would be easier to use and result in a better extraction yield, thereby allowing locals to extract more oil from the same amount of ylangylang flowers.

1) Barangay is Filipino term for a village. The word is reflected from the old culture that hundreds to a thousand households live in the unit of a village



The existing oil extractor. People had to climb up the ladder with large baskets and put flowers into the distillation barrel.

On our first visit to the site, there were many problems that needed to be addressed. First of all, the facility was literally too big; The giant two-story tower was capable of extracting 75 kg worth of ylangylang flowers per load. And since it used firewood to distillation process, the distillate was highly likely to be exposed directly to smoke and soot. This first priority was to create an smaller extractor in size as locals requested a compact and work-efficient extractor. For a skilled engineer, Mr. Kim, it was not a difficult job. To Find the suitable Appropriate Technology to make it happen was the hard part.

Like most of the areas except for Manila, the capital city and a few large cities in the Philippines, Anao lacked the stable power supply and suffered from frequent outages. The goal was for the locals to be able to maintain and manufacture additional units on their own once all related technology including the drawing of the extractor, operation and management given. In order to make this possible, we only needed to use parts that are locally available in the Philippines. These two were the core tasks needed to achieve in the project.

Philippines was one of the countries that sent troops to Korean war and once far developed than Korea. The infrastructure in the Philippines was worse than we expected. We had to make changes to our plans according to the local conditions in Anao.

Every part Must Be Locally Available

We were frustrated at the range of materials that were available in the local market. We knew that it would be a nearly impossible to complete the project on time considering we only had a week for market research to find right materials. Besides, our team was working in a foreign country they knew nothing about in regard to the area and the language. But the real problem was that we could not find the materials we needed. The local market was too small. Design a new extractor using only locally available materials was a big challenge. In Korea, a vast array of tools and materials were available, however it was not the same case here.

“We have better stainless valve in Korea. Can we just use that one instead of this bronze valve?”

“No, Mr. Kim. We have to stick to the principle of absolute localization in order to help the people here stand on their own two feet. I know it’s hard, but please try and come up with an acceptable alternative.”

“But we keep looking and looking, and all we find is nothing. We can’t make each and every single part from scratch.”

“It needs to be stainless steel and if we can’t get it here then we have no choice but making one by ourselves.”

It was Mr Kim’s first time participating in AT project, he found the concept easy to understand but difficult to follow. All his life, he had selected only the best parts and materials available to make the best machine possible for his clients. But, AT required an entirely different approach. Throughout the project, there was the incredible burden of having to create everything from scratch. Later, it became apparent that being pushed to the limit was actually a terrific opportunity to upgrade someone’s skills and expertise.

“I used to believe that a high-functioning facility could only be built under the best of conditions. But, by dealing with numerous limitations



Based on the drawing he completed in Korea, Tae-sung Kim is building a prototype for the extractor in Anao.

throughout the project, I had to brainstorm for innovative troubleshooting ideas. I have to admit it was an excellent growth opportunity for me as an engineer.”

Oil extractors are pretty simple compared to other more complex machines and electronic devices. But knowing that doesn’t comfort you if you do not have access to the parts and materials you have always taken for granted. The most shocking thing was that the locals treated such massive inconveniences as an their everyday life. Having never experienced a bounteous supply of goods, they didn’t realize what they were missing. It all started to make sense why their oil extractors were so obsolete and run-down. This understanding made us think again what AT would be most beneficial for the locals.

“When I was young, I wandered around all hardware shops in Cheong-yecheon in Seoul. There, I came across a bolt shop where literally sells nothing but different kinds of bolts. At first, I wondered how such a shop could possibly stay in business, but someone later told me that this one shop supplied nearly all bolts used in Korea. While I was having trouble finding parts in Anao, this bolt shop came to mind for some reason.”

Just as Mr. Kim wanted to point out, there was a difference between Korea and the Philippines especially, in the availability of necessary materials. Nevertheless, the goal was to develop a new extractor that best suits locals’ needs.

Solving Problems One by One

After market research, we started working on the drawing as requested by the Philippines. Meanwhile, we listed parts required to manufacture a prototype and sent it to the Philippines with explanation about the function and the use of each part. In doing so, we could check whether the parts were available locally, and whether there were any alternatives for locally unavailable parts. We made changes to the drawing according to the feedbacks from the Philippines. This was a process that was repeated over and over because everything needed to be ready on time before our trip to the site in December. There was no room for mistakes in order to accomplish the goal in a very short time. In December, we needed to make a prototype based on the drawing and continue to demonstrate improved oil extraction capabilities and compare the quality of the oil from the new extractor with the old one.

“I can’t describe what it felt like other than to say there was a sort of exciting pressure. Since we were faced with numerous restrictions such as time,

cost, and access to resources we really had to challenge ourselves to get everything done on schedule. Of course it was stressful to solve problems under limited conditions. But there was also an excitement as we overcame the difficulties one by one. And we are proud that we were able to complete our mission and help people in Anao.”

At last, We went to Anao with final drawing of the design to make a prototype of the oil extractor. Although, It didn’t seem to be particularly demanding or prone to errors, but having to make a prototype with strangers in a foreign country made the task more complicated and harder. Fortunately, every single person in the Philippines—including everyone from Rolling Master, a local manufacturer, and PhilMech, a local technology research center, —was truly passionate about his or her work and friendly.

The Success and an Unexpected Bonus

On the third day of our trip after two day prototype production process, we conducted a test in the presence of officials and engineers from oil production companies in Anao. Compared to the old facility which was huge and required at least two people just to put the flowers into the barrel, the new extractor was exceedingly compact. The locals initially seemed doubtful and discouraged by its diminutive size. But, they quickly changed their tune once they saw that the ylangylang oil was being extracted without smoke in just one hour after the flowers were put into the extractor.

The new oil extractor wasn’t just about its compact size. A pressurizer was added in order to extract the oil at a much higher pressure and temperature. In doing so, there was an unexpected bonus: higher quality oil. In the case of the old extractors that heated by firewood, the high

humidity hampered combustion, increased the time required for boiling, and worsened the overall quality of the oil by exposed to smoke and soot. By eliminating the need for firewood, these problems were gone for good. And, more importantly, the extracted oil appeared much clearer and brighter meaning a significant boost in quality. The value of ylangylang oil would increase if the quality is secured. That meant that not only could locals do the job faster and easily, but also enjoy much higher profits. Locals also looked satisfied and excited about their joyful future.

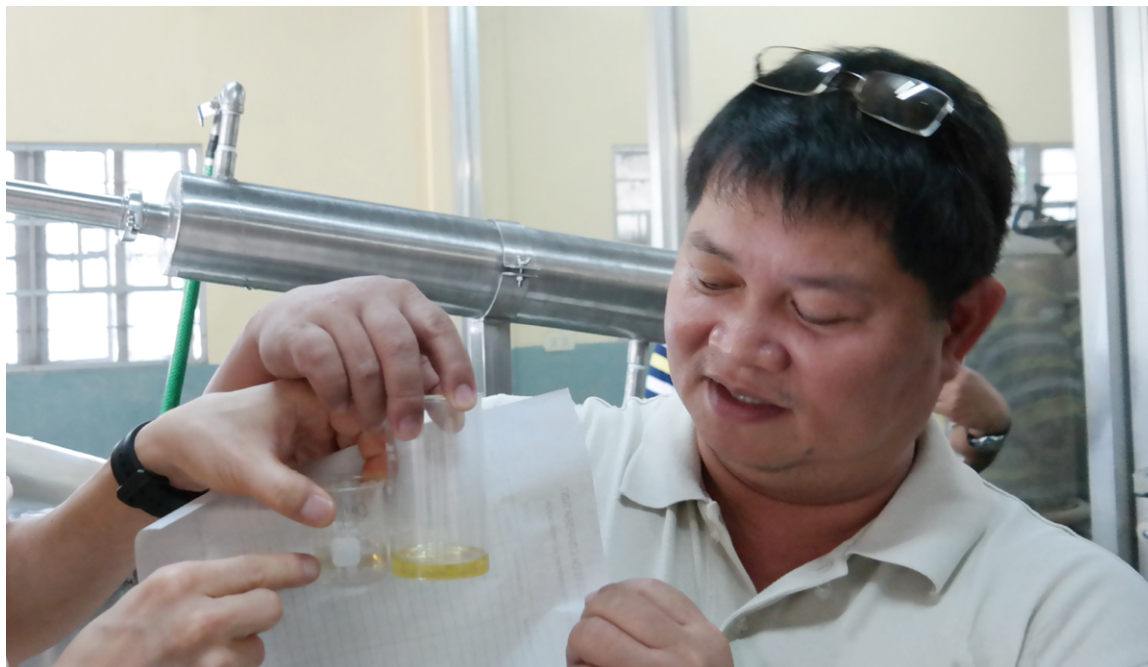
Appropriate Technology makes the world a better place

“Mr. Kim, do you have any regret that you came to here to work with for the project? It would be more profitable if you stayed in your factory.”

“I wouldn’t join this project if I thought I would regret. I’m a quite spontaneous person. I joined this project because it sounded interesting that I could help somebody with my technology and I thought it would be rewarding when first suggested. But I think I learned so much from the IP sharing project. (The rest omitted) It would certainly be beneficial for locals to get free technology transfer and be allowed to use patented technology but what I saw in them was great passion and aspiration that boost the quality of their life not just the desire for free technology. I final-



The new oil extractors are compact and in operation at each barangay in Anao. It is much compact, efficient and fast with extraction features.



The clear liquid on the left is the oil extracted from the new extractor, and the deep-yellow one on the right is from the old extractor. The photo of Felipe, The mayor of Anao, observing the improvement.

ly understand how people on TV feel when they say, 'I am happy to have something to share with others.' I only regret that time and language barriers prevented me from sharing more.

"Mr. Kim, CEO of ThinkTop R&D confessed that he earned and learned so much more from IP sharing project during AT development with KIPA. What he earned was the confidence that he could become a better inventor and do much better. The achievement of the project was only possible with a inventor who has no worries for plagiarization by others but positive attitude and willingness to develop and upgrade his technology.

Additional support gives wings to ylangylang oil extractors

At the time of the project, Korean government started to acknowledge the importance and value of AT support project. KOICA of Foreign Ministry and KIPA of KIPO decided to proceed with joint public project exploiting their characteristics. The first of the project is to extend the spread of oil extractors in the Philippines and rope pump in Papua New Guinea.

Dr. Ofero from PhilMech and Yu-mi Kwak, Korean patent attorney, are testing the new extractor.





The latest extractor after a few improvements. Mr. Kim said he would be eager to share more technology from his latest products if people in Anao need.

In the kick-off meeting held in November, 2014, Ricardo R. Blancaflor, the general director of Intellectual Property Office in the Philippines promised his full support, noting he would put every effort to spread the outcome of the project in the world wide.

Under the government support, the 2nd project for Anao in the Philippines started. The key goals of the public joint IP sharing project by KIPO and Foreign Ministry are to support production by improving production environment through continuous development and the spread of AT for

oil extractors and to provide training by dispatched experts to add value to the local products. The cooperation of officials of both countries was critical in order to achieve the goal set; Spreading 10 oil extractors to the corners of the country.

As set initially, KIPO manufactured 10 oil extractors with the full support and great effort by locals, hard-to-find oil extract specialists and related technicians from Korea. We even achieved 1% extraction in the production test, meaning more production with less raw materials. It is now time to worry about the beautiful product wrapping for excellent quality aromatic oil to be displayed.

Like wild flowers that bloom and bear fruit on their own

This public project included the support for 2nd product production using aromatic oil and education space other than mass production and the spread of the oil extractors. In other words, the project focused more on locals' sustainability that goes beyond giving technology. Therefore, to follow up the completion of technology development, we needed to work on building Appropriate Technology Support Center and designing proper business model for follow-up research and development of business and education in the future.

"During the project, we did some market research in aromatic oil for a long time and met experts in the industry for their advice. They all said that quality determines the value and the cost of oil. I've always thought the more oil we produce and the higher income we get. Now I've seen oil with better quality sold at a much higher price I realized it is not about the quantity but quality."



Third from the left: Hyun-suk Lim, Director of KIPO's Multilateral Affairs Division.
Fifth from the left: Leny B. Raz, Director of IPOPPL's Bureau of Trademarks.

"That is important to know."

"Yes. I need to ask you to help us for further in quality management even when the project is over and please recommend us any necessary equipment for oil quality management."

For follow up of the project, local officials of Anao who realized it is as important to produce high quality products as to produce mass quantity asked us to support their quality management in the future. As requested, we prepared facilities for quality management in Appropriate Technology Center to be built soon in Anao along with the related training. The local government in Anao provided a building for ATC and PhilMec, a local agricultural research center offered training on the research equipment and its usage such as component analyzer for quality management.

"We think the production quantity and quality has been stabilized and extractors are running well now."

“Yes. After all the help you’ve given us, we feel changes in our working environment.”

“It was only possible with your enthusiasm. We are still concerned about the business capability though.”

“We are trying to figure that out as well. Locals at first believed everything would get much better if they had better machine. I think they need to see the products in the market to understand better about aromatic oil business.”

“In order for produced oil to become a product, it would need a proper brand and a logo. Most importantly, we need to set up the quality management system for extractors as sustainability and continuous development is crucial.

Through a series of meetings with the central and local government officials and the locals on finding a way to optimize Anao Ylangylang Oil Business, we decided to have a gathering to share the outcome from the meeting. We also decided to develop a brand name and a symbol as the first step of the efficient promotion, marketing and enhancing business feasibility of 2nd product.

Many changes have been made from our first day in Anao a couple of years ago. People used to extract aromatic oil fueled by firewood now produce the same oil with much better extractors. They are able to set up the quality management system on their own and have grown to reach the stage of 2nd product branding. At first, we had doubts if they could achieve the goal set, but everything was smoothly accomplished with their own potential. We believe the key of the success of this project is at the united goal by locals’ acceptance and close communication based on the trust on our sincerity and technology. Locals are now fostering their own business mind by completing their tasks such as forming a union and

setting up ylangylang farm, herb farming system as well as having meetings with buyers.

A miracle in a small village

Ylangylang festival is held annually in Anao in March. At this time, Anao is packed with many people in Ylangylang theme costume and local markets opened around. However, at 2016 Ylangylang festival, unlike any other years, a hundred police was deployed for the attendance of high ranking officials from Korea and the Philippines. Locals welcomed their vice president and former president of the country with enthusiastic applause including many other high-ranking government officials. Korean ambassador and officials from KOICA, KIPO and KIPA also attended the event to see the achievement of the project.

We first came to Anao in 2013. Many changes have been made as you see now since then. KIPO and KIPA developed excellent oil extractors that would replace the old ones and establish AT center to provide training for locals to improve and manage their product quality on their own.”

“If it was not for KIPO and KIPA, Anao would not have been able to make it this far. We are currently putting all our efforts to gain competitiveness in the global market. We hope to learn and get advice from Korea in the future as well. Thank you so much for all the work you’ve done for us.”

The opening ceremony of AT center in Anao went well with favorable feedback by local officials and expectations for the future. We could return to Korea with pride and satisfaction from the successful ending of the project.



Opening Ceremony of Appropriate Technology Center in the Philippines

Currently, approximately 50,000 Ylangylang flowers are harvested every year in Anao. After twenty years of use, two extractors completely stopped working and only one worked to extract oil from flowers from all the regions in Anao and locals were anxious if the last one would broken in anytime soon. With the work done in IP sharing project, the productivity of aromatic oil has significantly improved and now locals can use up all harvested flowers for oil extraction. Furthermore, people in Anao themselves perform extract experiment and accumulate data as they have achieved technical development to do so. Accordingly, we support by providing research facilities and fostering environment to use them.

The income of the village was estimated to increase 4 times in the beginning of the project in 2013. Yet, the income of local residents in 2018 was confirmed to have increased 5 times compared to the year before the project. More women started participating in the economic activity and affected education opportunities for children. We expect more positive chain effect and more moves to regain its reputation as a ylangylang origin country. We hope the future of people in Anao blooms with fragrance just like beautiful ylangylang flowers.

05

| AT and IP Sharing Cases |

Bicycle-operated Pump: New Irrigation System Enriches Farms in Papua New Guinea

05

Bicycle-operated Pump: New Irrigation System Enriches Farms in Papua New Guinea

The village Pinu in Papua New Guinea – Rich in Water Resources but Lacking in Agricultural Water Supplies

Some of the most frequently occurring problems in developing countries include hunger, drinking water contamination which leads to waterborne diseases, and poor housing. The reasons for these problems are often associated with a lack of local technology and/or infrastructure, making it nearly impossible to effectively address each problem on its own. This is why more advanced technologies and ideas from around the world are needed. Getting outside input often helps make seemingly insurmountable tasks appear much more approachable once we are able to view them from a new perspective. The project to improve the irrigation system in Papua New Guinea is the best example of the case. It was a very ambitious project in that it involved enhancing the country's agricultural productivity as a whole. Upgrading the irrigation system was simply a part of the big picture. Work began with in-depth interviews with the Abadi Pinu (Pinu

villagers) in order to identify the most urgent needs, then from the result we pinpointed two priority tasks: improving the manner in which water was supplied to local farms, and providing agricultural machinery to offset the much-needed manpower. Both tasks were directly related to productivity increase and income of farm household. Unfortunately, due to the time limit, we had to specify the scope of support and determined to develop irrigation system through on-site inspection.

The request for AT-related support came from Pinu village, which is located about 90 km west of Port Moresby, the capital city of Papua New Guinea. Pinu had the abundant water supply nearby in the form of river, only about 4 - 5 km outside of town. However, since it lacked the proper means to take full advantage of this resource, the village was relying mostly on the groundwater that could be usable by digging about 2 - 3 m into the ground. The problem was that the local water pump was too laborious to pump out water as it had a manually-operated pulley that was connected to a rope for pump water from the well. It was inefficient both in terms of the effort required and the amount of water it could supply. Conditions were even worse during dry seasons when the level of the water would drop, making it even more difficult to pump water.

Fortunately, as a result of on-site inspections and interviews with locals, it was confirmed that the underground water was clean enough to exclude the risk of waterborne diseases. This allowed the project to concentrate on improving the pulley system without having to worry about designing a new filter to ensure the water quality. Some households had alternative sources of power such as diesel, solar and they were more interested in refrigerators and farming machinery. But we decided to secure enough of the water supply to boost agricultural productivity in the area as a whole. This prompted us to concentrate on AT research for better irrigation system.

AT enables cost efficient solution!

The easiest and the most efficient way to pump water from a well is to use a mechanized pump powered by either electricity or diesel fuel. However, such pumps were too expensive to be widely spread throughout the area. For example, The farm in the University of Papua New Guinea had a diesel-powered pump. The fact that the pump costs more than USD 8,000 and requires at least USD 25,000 worth of fuel annually made it impossible for most of the small farms in Pinu to use it compared to the current manual pump which cost USD 648. A similar cost-related issue arose for solar-powered pumps, which require expensive battery replacements every few years.

It seemed more economical to simply manufacture enough of the existing manual pumps to meet the demand, which is why, rather than come up with an entirely new design, it seemed more plausible to upgrade the existing pumps in a way that would reduce costs and increase their durability and efficiency.

After some research, We found an alteration to operating the pulley, by replacing its handle with foot pedals to spin the pulley. These bicycle-like pedals made the whole system a much easier to use since our legs are generally much stronger than arms. Replacing handles with foot pedals would double the amount of water pumped using the same degree of labor previously done with arms. With this in mind, we developed a new rope system attached to the frame and rear wheel of a bicycle. With the bicycle frame firmly affixed to a fixed spot, the wheels of the bicycle functions as the pulley of the water pump. Installed a guide on the pulley, the rope moves along the guide and pumps water.

Yong-gi Won, the CEO of Biz & Mold Corporation and an advisor, stat-

ed during the on-site inspection, "To be honest, my business specializes in molding, which at first may seem unrelated to the issue of improving irrigation systems in Papua New Guinea. However, molding is used for a wide range of products—everything from smartphones to musical instruments. We deal with pretty much all kinds of products commonly used in our daily lives, which is how we are able to quickly get down to the root, exactly how a particular product or machine works. I think this ability drove us to accomplish the important breakthrough in the project."

A New Water Pump Kit and an Unforeseen Setback

Mr. Won is a young and passionate entrepreneur who became the youngest licensed master in molding at the age of 38. As an engineer, his ideas and technological know-how were essential to address any unforeseen difficulties, and his discerning eye caught mistakes that otherwise would have been missed.

At the time we visited Pinu, the water pump they were using was designed by the National Agricultural Research Institute (NARI) in Papua New Guinea. In addition to the previously mentioned disadvantages of the pump, it had another drawback: NARI was not able to directly manufacture, sell, or give away the pump instead, encouraging locals to manufacture them on their own. As there was no one to step up and take charge of the manufacturing process, no further distribution of this pump was ever achieved. With that in mind, a new bicycle-operated pump was designed as a simple DIY (do-it-yourself) kit that anyone could easily assemble. It only takes to attach a bicycle to the existing pump within about 20 minutes in average making it feasible and effective. Once the kits are distributed throughout the region, they would then be able to ride their bicycle to the nearest pump and use it to pump water and water their crops as

their bicycle works as the pulley for the pump and then they ride it back home once the job was done. The only catch was that only 1 to 2 percent of the people living in Papua New Guinea owned a bicycle. This meant we needed Plan B.

Despite the setback, locals were very satisfied with the new pump, bicycle-oriented pump, which only one-eighth the effort required than the handle-operated model. In addition, because this system utilizes the rear wheel of a bicycle for a pulley, there was no need to manufacture a separate pulley meaning less time and lower production costs. Local farmers especially liked the simplicity of the new pump; only with a bicycle, a piece of knotted rope, a waterway pipe, a bicycle stand and a rope guide, they could immediately have a highly productive water pump at their disposal. And this system could be made available at an affordable price. The prototype cost USD 210, including USD 125 for the bicycle. The pump cost USD 85, which was USD 29 cheaper than 114 USD handle-operated water pump. Since bicycles were not common in local farms, we decided to provide one bicycle affixed to each well as a communal property for the entire village. That way, they could all enjoy the new pump at a much cheaper cost than paying by each household.

After a great deal of discussions and debates, we finally decided to affix a bicycle to each well to use as a pulley for the pump and allow access for all local villagers. As previously agreed, NARI was in charge of promotion, production, and sales of the new water pump kit. Thanks to this invention, 1,200 residents from 300 households in Pinu no longer had to worry about water, even during the dry season.

Maintenance of the rope pump from the first IP sharing project

The rope pump from the first project in Papua New Guinea was well received by locals for its simple way of use and assembly, and effort-efficiency in water supply. After completion of our first project, we were told that Papua New Guinea received European funds and manufacture more rope pumps. Meanwhile, in the joint project of KIPO and Foreign Ministry in Korea, aromatic oil in the Philippines and bicycle oriented pump in Papua New Guinea were selected as its first project and an additional budget was allocated. Therefore, we contacted NARI, our local partner for extra investigation such as current use, necessary improvement and locals' feedback. And we receive the following letter:

Greetings from NARI in Papua New Guinea. Please accept our sincere delight and gratefulness for once again offering help followed by the last project. As your requested, we checked a couple of areas including the last beneficiary and from the result, we recommend you appropriate areas for your next project.

We recommend a village 'Hishu' in the Central State. As you know, the village was provided the rope pump from Korea as a first project beneficiary. With high usage and sound management of the pump for three years of use, I believe this village deserves to be the next beneficiary and locals would be very happy about it. I have two more areas in my mind, Intuap and Gabensis in Morobe. Both of them are suffering from the shortage of irrigation water in the dry season. (The rest omitted)

As recommended, we arranged our business trip for comprehensive on-site investigation including project feasibility study, material supply, manpower and roads nearby to carry out our next project.

After a long flight, our team finally arrived at Port Moresby International Airport. However, we had to continue traveling to Hishu without delay, where we were recommended first. When we arrived, I was able to hear the live voice of local residents.

“Compared to Chinese pump, I can say the pump is made for our daily use in terms of parts and how it is operated. it was very easy to use without much trouble.”

“It is safe enough to use even when children are around. I am very happy about it”

Despite positive comments by the locals, we were able to find the unseen problems as we ourselves had a try to use it; The pump shakes when the pedals are pushed. The pump works by the power that the pedals of the bicycle are pushed to pump out water. It happens to shake every time users push both side pedals. We could learn that parts or piston could be worn down from the shake and we could use solar panel this time. We had to make a compromise with unstable electric power supply in the local area for the previous manual model in the first project. With solar panel, we could make stronger a pump with an electric motor.

Evolution of appropriate technology, from manpower to solar power

After on-site investigation, We started to look into open patents on rope pumps so that we could improve the existing pump and locals could manufacture it in Papua New Guinea even in the poor manufacturing environment. We searched for all related data in the world including expired patents in Korea and we found the possible solution from the Practica Foundation, Dutch non-profit organization. The Practica Foundation, established to address issues in energy, drinking and farming water in devel-

oping countries in 2001, developed ATs including pump related ATs and open them for public use.

We decided to make the body part of the pump based on the rope pump production manual published by the Practica Foundation and combine solar system. we needed something to control the speed of the motor that rotates the pulley in order to slow down the worn down of parts such as the pipe and piston. With solar power, there would be a significantly less chance of trouble and less need for maintenance not to mention stability of the power supply.

As planned, we manufactured a prototype with OPATech, a machine manufacturing company in Korea. A Test for the prototype is set to the level of pumping water from a 20 meter deep well considering severe drought in the dry season. The outcome was exceptional. The test showed the pump would be able to supply 1,000 liters of water in 30 minutes using solar powered battery. Despite outstanding result, we were still not certain whether we could manufacture exactly as the drawing and how much difference would there be in the specifications of the parts. Moreover, we had to manufacture 15 pumps including its prototypes and carry out performance test in a limited time. To make it happen there was no room for any unexpected troubles in material supply and local partners. It is important to secure local material supply route to maintain the sustainability of the AT after completion of the project.

And we created a installation plan in accordance with the local environment by studying current situations and characteristics of the villages where the pumps were to be installed. Fortunately the staff from NARI had experience working with us and showed firm trust in us, so we could work with them more cooperatively. Despite the time limit, we managed to finish the project on schedule as mechanical experts we sent instructed and supervise the overall process of AT instructions and pump production



One of the engineers from NARI is making a rope pump after AT production training by an expert from Korea

with cooperative technicians from NARI.

Having completed water pump production, we prepared irrigation facilities and water tanks to use with. We designed appropriate irrigation plans depending on different crops grown by villages and installed oozing hose or dripping hose for irrigation. Total 13 irrigation facilities and water tanks were provided, 4 in Gabensis, 4 in Intuap, 5 in Hishu and one in NARI Mo-mase office and Southern office each. We also provide a soil analyzer for long-term farming productivity improvement. Locals had an opportunity to foster specialized manpower to carry out training on water pump production, irrigation facility installation and its usage to local residents.

AT brings sustainable growth in developing countries

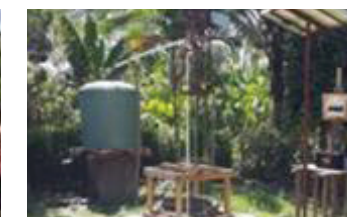
“Locals were mostly satisfied with the performance of the prototype. To be honest, a few did complain that we did not offer them the more advanced models used in Korea. However, Korean models unsuitable and



Intuap-Maria Linibi



Intuap-Jack Rasi



Intuap-Koni



Intuap-Paul Kapiri



Gabensis-Sam Ifid



Gabensis-Reso Apek



Gabensis-Sam Jonah



Gabensis-Mathew Marib



Hishu-Emmanuel Ovia



Hishu-Ikubu Vaki



Hishu-Noho Apa 1



Hishu-Noho Apa 2



Installed in NARI HQ and in Laloki



Total 15 rope pumps and irrigation facilities, 12 to the beneficiaries and 3 to NARI, were manufactured and provided in this project.

unaffordable in local environment. If I were an entrepreneur interested in CSV (Creating Shared Value) activities, I could have just bought them a fancy pump instead of having trouble of designing, building, and testing the prototype for APPROPRIATE TECHNOLOGY Co-Existence by IP Sharing. It was the project goal—the utilization of AT—that drove me to come up with an innovative and creativity for new solutions. I felt proud by involving in the well-intentioned project and as an engineer, I like it when I experience something challenging that pushing myself to the limit. I would definitely jump into it once again if I have a chance to use my technology for something good.”

Testing of the new prototype did not always go smoothly. As mentioned above, some locals complained that they should be given something more advanced or something that had more room for improvement. But the time limit and less-than-desirable local conditions enforced a make the best with what you have attitude. Out best was to giving people in Papua New guinea the proper tools, then instructing them how to use and maintenance. Now that they have both the design and manual of the pump, they can build additional units and make improvements on their own. This is just what the project is all about: helping people in developing countries stand on their own two feet not just providing them with a one-time aid.

After completion of the 2nd project, final reporting of the project was held. Many related government officials from Ministry of Agriculture and Investment Promotion Authority of Papua New Guinea and the local press attended the event to celebrate the success of the project, the follow up measure of APEC meeting.

”Thank you for your hard work and cooperation. We prepared instruction manuals for you. It is about rope pump AT and the use of the irrigation facility. I think It is a good idea to have one for one village so anyone can



A group photo take at the final reporting of the project

read it when need. Please let us know if you need anything.”

”Thank you. We are all aware of the support you’ve given us. we won’t forget that and will make good use of it as much as we can.”

Even though everything ended, just like what a local said, we hope our AT helps all the areas in need for irrigation water supply.

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

06



| AT and IP Sharing Cases |

Renovation of
Tarlac's Regional Brand

06

Renovation of Tarlac's Regional Brand

As a region that is heavily influenced by Catholicism, Tarlac boasts a huge statue of Jesus that attracts many tourists every year.





Team Manager Yee-Chan Jung, from the Korea Productivity Center, is giving a presentation on the project.

Tarlac Province, the Philippines

There is a famous statue called Christ the Redeemer in Rio de Janeiro, Brazil. A similar, though smaller and less widely known, statue of Jesus also exists in the Philippines, and the Tarlac province attracts many tourists with its display of a piece of the very cross on which he was crucified. As a result, many locals make their living by selling various related souvenirs to tourists.

Tarlac already had its own regional brand, “Natural Tarlac!”, when, in 2012, they requested for support in developing a new one. The Natural Tarlac! brand was mainly applied to locally grown produce and processed food made from rice, sugarcane, and coconuts.

However, this brand placed too much emphasis on being natural, making it poorly suited for other regional products like ceramics and other kinds of handicrafts. In addition, regional licensing standards were too vague for this brand to be well regarded as a guarantee or certification of a product’s quality.

For these reasons, local business owners, as well as people like Tarlac Governor Victor Yap and Marvi T. Dela Cruz, Director of the Provincial Cooperative & Enterprise Development Office (PCEDO) in Tarlac, were determined to replace “Natural Tarlac!” with something more well-suited for being the representative brand of the province.

Unlike brands for general products and services, location-oriented brands (for cities or regions) often include concepts that are rather abstract or comprehensive, but which reference the unique aspects of a particular region whether in terms of local geography or culture, the characteristics of its residents, or important national landmarks. That is why conducting an on-site survey and face-to-face interviews with local residents and business owners are so essential. They are the ones who know best as to what their local brand should look like.

Through these conducted interviews, it was learned that nearly all local businesses were small, family-operated affairs that employed anywhere from three to ten persons. And the goods being sold were far more varied than expected: in addition to primary agricultural products, these goods also included secondary agrotechny products such as handicrafts, leather

goods, ceramics, hand-made bags, etc.

This amounted to quite a conundrum. Even if developing a good brand for the Tarlac region was successful, it was likely that the effectiveness of this brand would be blunted due to overuse by numerous small local businesses who had very little in common.

Fortunately, IPOPHL (The Intellectual Property Office of the Philippines) stepped up to support the trademark registration of the new regional brand, while PCEDO expressed its willingness to rein in usage of the brand by putting it under the management of a TFT (Task Force Team). That left three primary tasks: brand naming, logo design, and preparation of an education program/manual on effective brand management.

Excellent Goods Produced by the Kind, Honest People of Tarlac

After interviewing local business owners and talking with several public servants and residents, three primary aspects of the Tarlac natives were discovered.

First was their kindness. Everybody in Tarlac was friendly, and always welcoming with big smiles. They were good-hearted people who worked hard to make anyone feel at home.

Second was their sincerity. Living in a predominately Catholic area, the people of Tarlac were very straightforward. There was none of the usual hesitations felt between strangers; they were always frank in their dealings, with little or no political posturing. Everyone would be greatly impressed by their sincerity, and strongly convinced that the products they made were trustworthy.

Third was their commitment to superiority. They were proud of the products they made, and worked hard to maintain that pride.

These three key features of the Tarlac people were kept in the forefront as a brand name was being created. It would highlight the innate excellence of Tarlac, while also promoting the fact that it was being applied to high-quality products only.

After consulting with a domestic advisory group, ten potential candidates were narrowed down to four, focusing on names that would be attractive to tourists—foreigners, in particular—visiting the area. This meant the perspective of strangers needed to be prioritized over that of Tarlac residents and business owners.



There was an unexpected response. Based on information gleaned from a branding seminar and advice on effective brand development, local students and professionals in the field of industrial design came up with their own ideas for a brand name and logo and sent them in. Although efforts to instruct about proper brand development were severely limited due to time constraints, the passion and intelligence of these locals led to some pretty impressive outcomes.

The brand names and logos sent by the locals differed greatly from the aforementioned four candidates. But the locals had to be acknowledged as they had done an outstanding job of representing the characteristics and features of Tarlac. Even more significant was the fact that they had shown initiative in taking the lead and coming up with a design all by themselves.

Although input from experts usually ensures better quality and is therefore highly advisable, it was the residents of Tarlac who would be devoted to the brand more than anyone else. Furthermore, it is the brand developer who must always work to ensure consistent brand management over the long term.

Since the project's role was limited to brand development only, this did not include helping them with the management of their new brand. That would be left up to the local business owners and TFT. This realization served to settle the matters, and it was concluded that the project would be completed by working to enhance the quality of the design they had sent.

The revisions were mostly related to adjusting the font they had used and re-arranging certain elements of the design. For example, the way the image and the letters were originally arranged lacked the proper balance and looked a bit awkward. So some changes in regard to the type, thickness, arrangement, and spacing of the font were made in order to high-



The original design of the brand name and logo developed by the people of Tarlac



The revised version

light the strengths of the original design. Since even a seemingly minor change can greatly impact a design's visual appeal, notes were included explaining our reasoning behind each adjustment.

Taking extra care not to heavily alter the original design, the look of the design and the readability of the font was changed.

The Ultimate Purpose of the IP Sharing Project: Empowering Locals to Stand on Their Own Two Feet

The ultimate goal of the IP sharing project is to provide locals with the means to stand on their own two feet.

Its purpose is not to simply offer a handout. Therefore, when the people of Tarlac proactively developed their own brand, it meant that the mission was a success. Help from the staff of the Korea Productivity Center, as well as the external advisory group were appreciated as they were highly supportive of the way things turned out. Tarlac was a perfect example of how people in developing countries could take the lead in improving their own economic situations. The hope is that this will lead to more instances of groups and/or companies spearheading the vitalization of underdeveloped areas in the years to come.

07

| AT and IP Sharing Cases |

Bolivian Royal Quinoa

07

Bolivian Royal Quinoa

Our Long Journey to Experience Quinoa

Known as the “mother of all grains,” quinoa has a history of more than 5,000 years, and is one of the oldest crops in the world. In fact, it was an important staple for the ancient Aztecs and Incas living in South America. For a kind of grain, quinoa is very rich in protein, and it contains other healthy elements like vitamins and minerals. This is why the crop has received major attention in advanced countries such as the US and the UK. Gaining popularity in Korea over the last several years, quinoa is now often found in large super markets. Since the average Korean diet is high in carbohydrates, quinoa has rapidly become popular among people interested in maintaining their health and beauty.

The brand consulting project began at the request of the Bolivian Chamber of Quinoa Exporters (Cámara Boliviana de Exportadores de Quinoa y

Productos Orgánicos, or CABOLQUI), a non-profit organization that focuses on promoting, selling, and exporting “Royal Quinoa” (organic quinoa) on behalf of local crop owners.

Similar to the cases of Cambodia and the Philippines, Royal Quinoa was being sold very cheaply since it was being exported in bulk without any quality assurance mark or brand. In fact, the price seemed ridiculously low considering the quality of the crop. Several years prior, CABOLQUI attempted to address this problem by applying for a geographical indication (GI), but their application was unsuccessful. After hearing about their situation, it seemed appropriate to go to Bolivia where the matter could be studied in more detail.

A trip to Bolivia to meet with CABOLQUI and learn more about quinoa involved receiving vaccinations for yellow fever, a mosquito-transmitted viral disease commonly contracted in Africa and South America. Since Bolivia was situated right in South America’s Amazon Basin, such vaccinations were required before travel visas could be obtained.

When I went to the hospital for my vaccination, the nurse told me that some people experienced fevers and other minor side effects. Although I never expected to be one of these people, I ended up spending the rest of the day with a high fever, which made me think twice about what I was getting myself into.

“Well, this trip has certainly started off with a bang,” I thought. With that in mind, I took extra care in preparing for the trip, even going so far as to pack a first-aid kit. Unfortunately, however, the hardest challenge I ended up facing in Bolivia was something I never would have expected: the high altitude.

As soon as newcomers arrive in Bolivia, they would immediately find it difficult to breathe. It was shocking how out-of-breath one could be at 4,000 meters above sea level. One would never forget their first few hours in Bolivia as every step taken would leave them panting and feeling dizzy.

People living in this environment possessed some unique characteristics as a result of adapting to life in the highlands. For example, they had large upper-bodies, including bigger lungs that gave them a much higher breathing capacity.

The oxygen-scarce environment also affected the local society; while underserved people lived high up at around 4,000 m, the luxury buildings and the embassies were concentrated much lower, at around 3,500 m. It was an interesting but bitter reminder of how social classes are sometimes divided.

A Superfood Produced in a Harsh Environment

Although Bolivia is deemed unfamiliar by many Koreans, this may not be the case. The Salar de Uyuni (or Uyuni Salt Desert)—one of the most fantastic views in the world—is located there. Bolivia, a country that experiences severe water shortages, was also the backdrop for the James Bond movie *Quantum of Solace* in which Bond travels there to confront an evil multinational conglomerate that has a stranglehold on the country's water supply. Bolivia's high elevation often leads to severely cold weather, and the saltiness of the soil makes the land difficult to farm.

However, this relatively harsh environment gave birth to Royal Quinoa which has proven to be more nutritious than similar crops grown in friend-

lier conditions. In addition, Royal Quinoa is grown 100% organic which is something that could be emphasized to help to promote the Quinoa's brand value.

Such information seemed sufficient for coming up with a way to pique people's interest in Royal Quinoa. The biggest questions at hand were: what kind of trademark should be prepared and how could Royal Quinoa be classified as a GI. Answers were sought not only from CABOLQUI, but also the farmers producing the crop.

Unfortunately, it was the last week of October, which, in Bolivia, is when the farmers are busy with their harvests—meaning that they lacked the time to sit down and talk. As people used to living in a big city, it was hard to realize how difficult it would be for the Bolivian farmers to pull themselves away from their work during this time.

"Ms. Mejia, it took us more than a day to get to Bolivia. How come they refuse to give us a few hours of their time?"

"I'm sorry but farmers are extremely busy during harvest season. We try to bother them as little as possible at this time of year."

Paola Mejia, the General Manager of CABOLQUI seemed very sorry at not being able to make introductions to the local farmers. Though this was an initial disappointment, it enabled the ability to focus on the bright side and be happy at the chance to take a brief rest; the struggle with the altitude difference was all too real, and therefore no one was in a condition for a rough ride to the farms.

Instead of visiting the quinoa farms, Mejia arranged a meeting with the

CEOs of local quinoa producers. Being well aware of how CABOLQUI's attempt at GI registration had turned out several years prior, they regarded the project with a mixture of high hopes for success and concern over another possible failure.

[Interview with Juan Pablo Selema, CEO of Quinoa Foods]

"It's a great pleasure to meet you."

"Mr. Seleme, thank you for taking time to see us. Can you first tell us a little bit about your business?"

"It's been a bit more than ten years since Quinoa Foods began its operations. We are the largest quinoa supplier to the US."

"I see. Then I suppose you know a lot about how things are in the US market, especially in regard to Branding."

"That's right. Being branding experts, I'm sure you know that no matter how great the product, its value will never be recognized in the US unless you have the right marketing tools. That is exactly why we urgently need our own GI."

"Right. Even if we say that our quinoa products are 100% organic, nobody would believe us without certification from a public authority. That's the way it is."

"As a CEO, I am satisfied with the current standards to pass assurance.

It's just that we will have to struggle with the farmers for further coordination. To get certified, we need to raise our quality assurance standards, and many other standards, up to a certain level. I am sure the local farmers won't be too happy with all the changes that must occur in the process. So, I hope you will prepare some factsheets and evidentiary data to help convince them."

The Search for an Intuitive and Stylish Certification Mark

In this project, the focus was on two things: development of a "brand certification mark" (different than developing a "brand") and consultations regarding certification. As a result, this project had a stronger emphasis on performing consultations than any other project launched thus far. However, this did not make design development any less important since it was mostly the US and the EU markets that CABOLQUI wanted to register their trademark in.

The text to be included on the certification logo was decided right away during the first meeting. "Quinoa Real – Del Altiplano Sur de Bolivia (Royal Quinoa from the Bolivian Highlands)." No more, no less. That short phrase expressed the key message about the Royal Quinoa highlighted by CABOLQUI. Although it would have been nice to mention that it was "100% organic," it was less important since it was something that could be focused on later in advertisements and packaging designs.

If the quality of the Royal Quinoa were to be recognized and eventually gain traction in the US or the European markets, access to other markets around the globe could be achieved more easily. Therefore, the logo de-

sign had to be perfect, especially since it could not easily be changed once registered as legal protection was solely granted to the version of design that had been submitted for registration. That being the case, the project and its partners at CABOLQUI had to proceed as carefully as possible.

The motif for the Royal Quinoa logo was already firmly etched. The facts that quinoa was an essential crop, had the hard-earned title of “organic” which requires a great deal of time and effort to receive, and because it only grows in a very small area of land gives the necessary elements needed to come up with an intuitive and stylish design.

The motif for the Royal Quinoa Logo



[1] Quinoa is an essential crop for human nutrition.



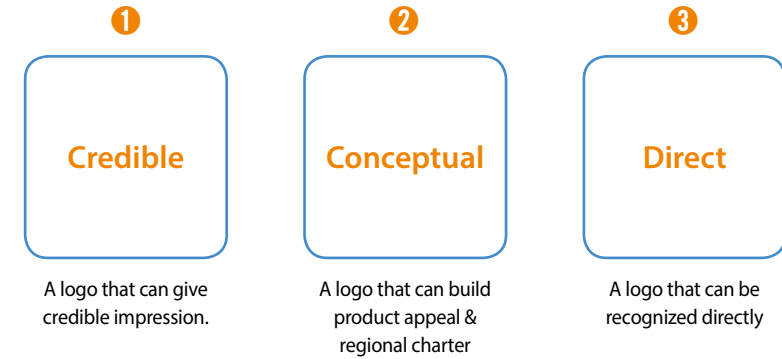
[2] The finest Organic Quinoa, premium quality and 100% organic.



[3] Only harvested from Bolivia, ideal for optimal flavor and texture.

Source : KPC (KOREA PRODUCTIVITY CENTER), '13 IP Sharing Project

The brand designer clearly understood what CABOLQUI wanted by emphasizing that the following elements be included in the logo:



credibility as a certification mark; symbolism representing the product's characteristics; and straightforwardness in order to enable consumers to immediately associate the brand with the kind of product being sold.

All of the design drafts placed the brand name “Quinoa Real” (Royal Quinoa) at the center so that it would simultaneously function as both the certification mark and brand logo. It also included information on the product's origin by inserting the phrase “Del Altiplano Sur de Bolivia” (From the Bolivian Highlands) according to different layouts for each of the twelve potential designs (which would later be narrowed down to a final selection). Regarding the overall designs, they could be divided into three different categories: one that focused on the appearance and color of the quinoa crops, one that looked similar to other existing certification marks for other existing brands within the region, and one that featured an “old-fashioned” sensibility that was hoped would appeal to US consumers.



A total of 12 designs which included 3 components (reliability, symbolism, intuitive)

Why Brands Must Be Protected

Counterfeit goods focus on imitating the most famous brands found in any given market. Brand owners should be aware of the influx of counterfeit goods, but luxury brands have thus far seemed relatively untroubled by the impact that counterfeit items have had on their businesses. So, what is the reason for their apparent lack of concern?

Just as people with strong immune systems are less vulnerable to diseases, famous luxury brands have the vitality required to remain in business without having to compromise their image. Only when a brand achieves this kind of vitality can it protect itself from pirates. However, the projects in the Philippines, Cambodia, and Bolivia were still in their pilot stages, and the local citizenry had only just begun to recognize the concept and value

of branding—yet it was their job to foster the brand we created for them into something that would endure well into the future.

If ensuring legal protection for the brand name “Royal Quinoa” failed, counterfeit versions of this product would be given the chance to supplant the authentic version and conquer the global market. Although that might not spell the end of the world, it could result in reducing the market value of the authentic Royal Quinoa. If that happened, it would only be a matter of time before the local producers gave up on it.

Dreaming of Royal Quinoa’s Global Success

Since the goal was to register the Royal Quinoa trademark in the US and the EU, rather than in Bolivia itself, the extra mile was taken to make sure that everything was in order. For Royal Quinoa, achieving entry to the world’s two biggest markets meant easier access to other markets, as well.



This is the final version selected by CABOLQUI. The “Q” at the center immediately suggests itself as a quality certification mark, while the red and gold coloring makes for an attractive design and is representative of quinoa’s natural appearance.

From among the proposed designs for the certification mark, the people at CABOLQUI finally decided to go with 1-B1. There is now a discussion in process with independent producers about the notion of registering a GI based on this logo. Since CABOLQUI was unsuccessful in its previous attempt at registration, the current phase (following the selection of the logo) is of even greater significance.

In general, applicants must clearly organize the information regarding its product and submit the data to the certification body for GI registration. The information has to include the following: product name (or brand name), the safety analysis report on the product's components and ingredients, and the differences with similar types of products available in other countries or regions. In addition, the submitted document must include information on the applicant (in this case, CABOLQUI), geographical information regarding the product's origin, the technical/technological details pertaining to production and quality assurance, and information on the producer.

It was suggested that CABOLQUI hire a patent attorney in the US or EU to help with their trademark registration in those markets. The trademark laws of the US and EU would mostly be written in a language not spoken by the local Bolivians, and they would be full of legal terminology that even native speakers would have difficulty deciphering without the proper legal training. Therefore, speaking in terms of speed and efficiency, it is always wise to hire a patent attorney that hails from the country where you wish to present your trademark application. CABOLQUI simply couldn't afford to fail again in its registration attempt, so this kind of expert help seemed especially necessary.

The goal was to get Royal Quinoa successfully registered in the US and EU as a GI, and that it would eventually make its way into the Korean mar-

ket, where it was hoped that it would be sold at supermarkets and department stores in Korea.

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

KOREAN INTELLECTUAL PROPERTY OFFICE

08



| AT and IP Sharing Cases |

Ache Patchouli regain its old reputation by
AT from Korea

KOREA INVENTION PROMOTION ASSOCIATION

08

Ache Patchouli regain its old reputation by AT from Korea

Meeting Patchouli oil and its unlimited potential for the first time

Patchouli is one of the native herbs in Southeast Asia which was first introduced in the Victorian Era in England. With its unique foreign scent, It has repellent and preservation effects so mainly served to prevent insects on fabric back then. It has become popular as its efficacy varies in anti-aging, helplessness, wound healing, skin calming, appetite suppression and indigestion treatment. It is now one of the widely used herbal oils all over the world. Patchouli is extensively cultivated in Southeast Asia. It is said that patchouli from Aceh in Indonesia once occupied 90% of the world's patchouli oil market. However, production declined sharply due to a 30-year civil war and 2004 Indian Ocean earthquake and tsunami. As oil production facilities in Aceh aged, the products gradually lost its competitiveness in the global market. This is why Aceh Patchouli Forum that runs a profit making project for patchouli growers in Ache asked KIPO for AT support. As requested, we started off our project with local investigation.

"Thank you for coming all the way. Welcome all of you from KIPO and KIPA"

"It is pleasure to finally meet you. you must be Mr. Isfani"

"Yes I am. I am going to guide you to the patchouli farms."

"Thank you for meeting us here. how far is it to the farms?"

"it will take us about 4 hours to Acehjaya farm."

It was a long journey starting with 7 hour flight from Incheon to Jakarta, 4 hour flight to Banda Aceh and finally 4 more hour drive from Banda Aceh to the local farms. In May, It was hot and humid in Indonesia similar to the Korean summer, so we were already very tired from hours of traveling. And a group of monkeys we encountered at the steep cliffs scared us sometimes on our road trip. We arrived on the farm without any accidents though and Mr. Isfani gave us a brief explanation of the situation.

"Patchouli from Aceh has stronger scent and higher alcohol content than that from other areas in Indonesia. But now, for many reasons, production conditions got worse. We desperately need your help."

"What does the local cooperative do to help the area? We talked to DGIP (Indonesia Intellectual Patent Office) before we arrived but I believe you would have some more details to tell us."

"Ache Patchouli Forum manages 4 different cooperatives in the Ache area. 20% of growers are cooperative members. We buy patchouli grown by each household and sell it to the middleman, or extract oil at a cost for local growers. Some cooperative-owned farms are shared and managed by members. Patchouli oil extractor is the one most urgently need your help."

Mr. Isfani said after the tsunami devastated Aceh in 2004, the Aceh Patchouli cooperative received oil extractors from several international organi-

zations. But the extractors were merely improved in its productivity and durability similar to the traditional extractors. When we checked, all parts exposed to water already rusted since the pipes and tank of the traditional extractors that was locally used were made of metal. In addition, there was no lid for the water tank to be heated leading the products to exposure to foreign substance during production process. Produced under this circumstances, the quality of oil was poor so that locals could only sell the oil at a very low price.

Other than that, there were more problems in their extractors to be improved; it was difficult to maintain at a constant temperature for extraction as fueled by firewood, the oil and distillate are exposed to the smoke from incomplete combustion by firewood, and the water tank was separated and connected to the extractor with long pipes so it takes up large space and workers needed to move in between hindering work efficient. The vice head of the cooperative told us that once quality of oil was improved, they had sales routes of twice the current price but their dream seemed to be hard to achieve with just some improvement to extractors.

“I think the oil quality would not be dramatically improved unless we change something to raw materials management. It is the raw material’s quality that determines the oil quality but we found problems in the way patchouli is stored in Aceh farm.”

At Ache farm, harvested patchouli was air dried for 1 to 2 days. It seemed highly likely to affect the quality of dried patchouli due to high humidity in case of rain. They usually store the dried patchouli in a jute bag without second consideration. some naturally fermented patchouli was extracted to oil with unique scent differs from fresh patchouli but some got rotten or moldy from excessive humidity. Another serious problem here was locals don’t care to sort out bad patchouli and put all in one extractor to produce



Traditional extractor had issues in its low work efficiency from the poor structure and low production quality from corrosion.

oil. Locals seemed to have serious obstacles to revive their patchouli oil business; The quality of extracted oil is mostly uneven and poorly managed; They have insufficient recognition of dry and fermentation process.

Branding begins with quality control

We set our first goals in the project in improvement of oil extractors and production of a fermentation compactor then we started searching for related patent information. From total 590 open patents, we listed ATs applicable to the structure of the extractor, an oil separator and a cooler.

“New extractor is planned to be made of stainless steel. And we are going to use seal type cooler so that you could use water from the river for cooling instead of fresh or purified water for distillation. And we are looking into the way to enhance extraction yield and time by improving the



A demo extractor developed by Korean AT

structure of the distiller.

“Alright. We are looking forward to seeing the new extractor. thank you!”

“Not at all. And for even fermentation quality, we are going to design a compactor for fermentation. If patchouli is fermented in the compactor, the quality of the oil would become so much better. A specialized research institute in Korea will test to what extent it would be improved.”

After making a prototype using new technology we carried out performance tests and made improvement accordingly. Then we started working on our first extractor. We requested the Department of Chemical and Biological Engineering in Yonsei University to carry out the quality test of four different oils from the traditional extractor, Czech extractor, New Zealand extractor, which is known to be the best in the world and our new extractor. In the test result, the oil quality extracted from our extractor was confirmed to be superior to oil from New Zealand extractor in all aspects. With its excellent color and scent, in particular, the patchouli oil could have

* Previous patchouli alcohol contents are written in parenthesis

Item	Oil from traditiona l extractor	Oil from czech extractor	Oil from New Zealand extractor AE (world's best)	Oil from IP sharing project extractor
Color	Dark yellowish brown	Dark yellow	Dark yellow	Light yellow
Patchouli alcohol content (%) GC/MS	29.68(23.68)	29.46(23.46)	32.25(26.25)	32.72(26.72)
Iron content (colormetric.PPM)	600ppm	less than 100ppm	less than 100ppm	less than 50ppm
Hyrometer	0.965	0.967	0.948	0.945
scent	musty patchouli	slightly musty patchouli	Strong fermented patchouli	clear patchouli
Comprehensive evaluation	Low quality oil	Medium quality oil	moderate to high quality oil	Excellent quality oil

<By instrumental analysis laboratory of the department of chemical engineering, Yonsei University>



The right is the oil from the extractor developed by IP sharing project and the left is the oil from existing extractor. We managed to extract clearer and purer oil in color and scent adding values to the locally produced oil.

much higher value.

Meanwhile, the other task as important as technical development to enhance the value of patchouli oil is business strategy development. we and external brand experts carried out diagnosis on current local brands. As the result, locals recognize the shared brand but the logo being used was just a simple shape of patchouli which had little symbolic and aesthetic effect.



Newly developed brand logos and application samples for Aceh patchouli

“We reached a conclusion that we needed renewal work for the shared brand through checking many different aspects with experts. And current patchouli oil in Aceh stayed at simple production. To add value through brand development, we needed to develop 2nd products from the oil such as essential oil, perfumes, cosmetics, insect repellent and others.”

“Oh, that’s a good idea. do you think we need to create brand for each product?”

“Brand development from using shared brand seems better than creating perfectly different brand to maintain the consistency of the brand. We may think about the brand for each product after we decide what kind of 2nd product we will be producing.”

we developed a new shared brand using symbolic and sentimental characteristics of patchouli as patchouli represents Aceh and has sedative effect. And a variety of products from patchouli oil and application design were planned to be developed concurrently. we were also planning and preparing detailed education program to enhance locals’ brand recognition.

The first IP Appropriate Technology Center established in Siah kuala in Indonesia

KIPO has been carrying out IP sharing projects in many countries around the world since 2010. As the project continues, we started to be more concerned about not only application of the technology provided to our beneficiaries, but also sustainable development, the ability to develop by themselves. Especially, when our beneficiary ask for our help for new business or going into the global market using new technology, they need systematic management even after completion of project. We had to think about how to provide post-management in terms of continuous research and management for oil quality and market discovery for patchouli oil products. After long extensive discussions with Siah Kuala University we finally reached an agreement to establish Essential Oil Research Center in the university. The First Appropriate Technology Research Center of IP Sharing project was established in Indonesia. The Appropriate Technology Research Center is a research center that maximizes spread of appropriate technology after completion of project. The key purpose of the center to enhance economical and technical independence of beneficiaries out of AT given. Thus, According to the characteristics of areas and projects, it carries out a variety of tasks satisfying locals’ needs such as maintenance of the given technologies, technical development and training for locals.

We also provided one more extractor for research after signing MOU with the university on the center established within. So, total 4 extractors, one to the center in the university and the other three to patchouli farming areas were provided. They are now not only be able to conduct study on oil quality and make necessary improvement but also systematically establish and carry out business development strategy on their own.

“Thank you so much for even considering our sustainable development after the project is over. We are going to work hard for quality manage-

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

KOREAN INTELLECTUAL PROPERTY OFFICE

09

| AT and IP Sharing Cases |

AT oil separator makes Vung Tau
City cleaner

KOREA INVENTION PROMOTION ASSOCIATION

09

AT oil separator makes Vung Tau City cleaner

Waste oil clogs sewer pipes again

Our first project in Vung Tau City was dispersal sewerage system development and distribution in 2014. At that time, the city had odor and hygiene issues in water as untreated wastewater flowed into the river nearby due to lack of financial support for sewerage system. We were told that locals had been satisfied with the sewerage system KIPO and KIPA developed ever since they started using it. However, tasks still remain; Because Vietnamese use so much oil for cooking that produces oil in the wastewater as well. Besides, many homes don't have the kitchen sink and often flow wastewater from dish washing into the soil causing ground pollution. Locals wanted to do something and asked us for help again.

"Did you say oil in wastewater needed to be separated? We need to search for applicable technologies among Korean patents first and visit the city for site investigation soon."

"Okay. You can take a look at general homes or local restaurants for investigation. We are going to make an official request for cooperation to the city in advance."

Our 2nd project for Vung Tau City began with this conversation. A local official said water pipes often get clogged because of oil in general wastewater. Water pollution issue caused by oil containing wastewater needs to be addressed urgently. Our team visited local homes in the city for comprehensive investigation such as how waste oil is dumped, the status of the drainage and water supply, the condition of the pipes and food waste separators in order to see if oil separator is applicable and where to install it. We still needed to find the affordable ways that fit in the purpose of the project.

Searching for appropriate technology like puzzles

Mr. Choi Younghwan, CEO of DSMC, took part in the project as an adviser made suggestion at the strategy meeting in Korea.

"Based on what we've seen from the investigation, I believe we need to produce two different types of oil separators. Some homes have the kitchen sink, many others wash their dishes on the ground in the kitchen and let the wastewater flow into the soil afterwards.

"Then we would need a oil separator to be installed in the ground, don't we?"

"It seems to be more efficient in terms of technical effectiveness and sustainability to make the separator of stainless steel than fiber concrete."

"Would there be any problems getting stainless steel we need?"

"I need to check it with the local partner from the last project."

We started searching for related public and/or to be expired patented technology and utility models considering the suggestion, meanwhile BUSADCO, the beneficiary, checked if we could get necessary materials and manufacture in Vietnam. We got design work started with the performance test of the selected patented technology. We finally developed the acceptable level of oil separator through repeated tests and improvement process. Based on the findings, we finished the design. The developed oil separator was the facility equipped with an oil collector in the upper level with wale structure added using characteristics of oil that forms a band in water. Having sent the drawing of the design to the local beneficiary, we prepared for our 2nd trip for to supervise manufacturing process with instructions and advice.

“It’s been a long time. How are you doing?”

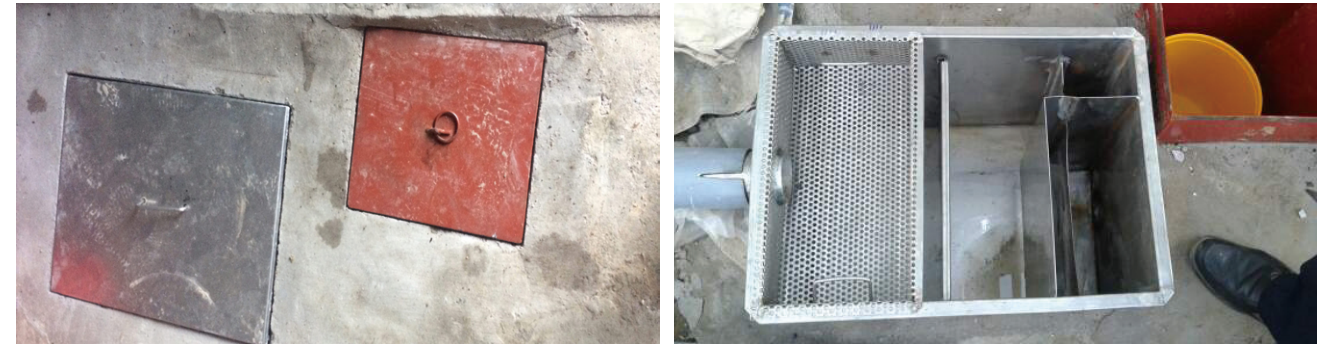
“I am good. I am glad to see you. Thank for coming all the way.”

“I believe you have done reviewing the design we sent. Did you have any problems in getting necessary materials and parts?”

“No. Everything is set to go and instructions have already been given to the manufacturing workers. we can start right away.”

Looking at the materials in BUSADCO factory, local stainless steel was thicker and better quality hence, the separator would be more durable than expected. The problems was water and oil from filter might go directly to the second cubicle without going through the first cubicle if we manufacture separator as designed in Korea. It was critical to secure safety as the separator would be visible buried down in the ground. We had to make some changes to the design and conducted thorough durability tests.

“Do you mind if we install the separator in the public kindergarten instead of restaurants that previously agreed?”



The public kindergarten we visited to install the oil separator in Vietnam.
We met children wondering what was happening.

“No. That’s okay with us. Is there a problem with the restaurants?”

“No. We think it will be more effective to install in the public kindergarten than in the restaurants and also more suitable for the purpose of the project.”

As requested and agreed with Vung Tau City, we installed total 27 oil separators at the cafeteria in BUSADCO, the local manufacturer, local restaurants, homes and public kindergarten after no defects confirmed in performance and durability tests.

Hoping it becomes the cleanest village in Vietnam

“It used to cost money to clean the clogged water pipes quite often. we are now relieved not to have the problem anymore.”

“The stream near the village used to be oily, dirty and have heavy odor. It appears to be much cleaner now.”

“The lid of the facility is light enough for a women like me to lift. It is easy to clean and I love it.”

In our next visit to Vietnam for maintenance training and status of usage, local users showed their gratitude and favorable feedbacks. What we offered was appropriate technology not the latest one and we were grateful to see locals make full use of the facilities despite the inconvenience they may have. The pride we get every time we solve problems of where we are needed the most might be the most valuable present for us.

There was one more important event other than oil separator user training in our last trip to Vietnam; Korea-Vietnam small-sized sewerage system completion ceremony hosted by Vung Tau City and Vietnamese Intellectual Patent Office. The event was to share achievements by IP sharing project since 2014 and reaffirm mutual cooperation between IP sharing project and Vietnamese government in the future. At the ceremony BUSADCO expressed their firm trust in us in the speech.

“KIPO and KIPA developed and distributed excellent sewerage systems with the same quality at only one third of the cost of Japanese products during the first project. I remember we learned so much and we were deeply touched by the enthusiastic Koreans while they transferred low cost and high efficient technologies and provided users trainings. It was my biggest honor to work with them and I would like to express my gratitude once again to many Koreans for their great help.

Staff and officials from BUSADCO, People’s committee of Vung Tau City and Ministry of Construction, Foreign Affairs and Science Technology in Vietnam attended the event eye-witnessing the achievement made by KIPA and KIPO.

We believe this project delivered the clear message that the goal of our project differs from unilateral one-off aid or aid supplies. As many officials said at the completion ceremony in Vietnam, we urge anyone in need for

our knowledge and technology ask us for help. We promise that we are going forward to the co-existing world through Appropriate Technology.



A Photo of all Koreans and Vietnamese involved in the project taken at the completion of IP sharing project by KIPO-KIPA

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

10

| AT and IP Sharing Cases |

Korean Technology goes into Uganda,
the largest farm in Africa

10.

Korean Technology goes into Uganda, the largest farm in Africa

Uganda farmers' unspoken concerns

Today, most of the advanced countries experience slow or reduction in population growth. On the contrary, Africa's population growth rates are still very high. Among countries in Africa, Uganda shows the highest population growth rate and its population is estimated to be 100 million by 2050 from 3.9 million in 2014. This rapid population growth is followed by food supply issues and Uganda is not the exception. One third of the land in Uganda is fertile with abundant water resource for cultivation. However, development of the rural area in Uganda has been very slow due to poor agricultural production base and lack of relevant policies. The biggest problem is poor drying technology for stock grain. The demand for stock grain has rapidly been growing for increasing number of stock farmers. But poor drying technology has resulted in damaging crops and/or leaving them exposed to fungi or bacteria. In the end, it led to high disposal rate of stock grain and the heavy burden for the stock farmers. With the

request by the Uganda Registration Services Bureau (URSB) and Makerere university, this project began with the involvement of the expert in the area, Sinhan A-Tec that has several patents on environment control of greenhouse for farming.

"Mr. Jang, Congratulate you on your acceptance as a partner in this project. I'm look forward to working with you."

"Mr. Ahn, thank you for choosing our company. We'll do our best!"

"I think this could be a good experience for your company to build solid foundation to go into African market. I will contact you with fixed business trip schedule soon."

"Alright. Thank you."

Most of farms in Uganda air dried their crops in its fields. Makerere University had been studying with experimental dryers provided by USAID, German relief organization. However, they were not effective or suitable for the situations in Uganda because of insufficient drying capacity and operation principle. The beneficiary wanted a dryer with a control as per various situations as they were aware of the issues of the dryer. We could realize how much they had been desired for the necessary technology by listening to their detailed requests such as wanting to use solar panel for unstable electric supply in the local area.

We need a proper dryer to use in the rainy season

After twenty hour flight from Dubai to Entebbe International Airport in Uganda, we went to Kampala, the capital, to meet with Professor Basha-sha's team from school of agriculture in Makerere University. The team said that they had studied on several alternatives such as making their own prototype and doing related research in order to make improvement to the imported dryers in Uganda.



How grains used to be dried. There were issues in work efficiency and hygiene as grains were air dried on the ground.



From the left, a dryer developed by Makerere University and various dryers used in Uganda. They had issues in the capacity, durability and usability and they were unable to cater for locals' needs.

Makerere University's prototype was made of general metal without plating so it seemed to be vulnerable to rust if exposed to high humidity for a long time. By inspecting different types of grain dryers used locally, they appeared to be inappropriate for use in the rainy season. And it was noted that the repair was difficult and expensive as they were made of polycarbonate material. So, we had to see which one was cheaper; plating or replacing to rustproof material, as there were companies that could do zinc galvanizing near Kampala. We also had alternative ideas such as replacing polycarbonate with vinyl materials to make it easier to repair. And we needed to check wide range of factors such as dryer capacity, possible control system that controls greenhouse depending on different weather conditions and structure of greenhouse.

Having finished on-site investigation, we decided the directions of design and capacity of the new dryer through reviewing suggestions by officials from Ministry of Agriculture in Uganda and Makerere university. We planned to work on design and prototype with Sinhan A-Tec when we returned to Korea. In the meantime KIPO searched for and provided necessary patent information. More drawing design and prototype production time was given as the prototype was to be tested in Sinhan A-Tec HQ.

We arranged for a meeting by contacting people in Uganda as the prototype test schedule had been fixed. We gathered in a long time in Changwon near the factory of our partner's. 40 Officials from schools of agriculture in Uganda, Ethiopia, Tanzania and Kenya were at the meeting showing so much interest in our technology.

"Thank you for coming all the way to Changwon. Mr. Kim Seungbo, Thank you for guiding our guests from Seoul."

"Not at all. I know everyone is working hard for this project and I am happy to do this for you."

"I am amazed by how fast Korea could complete from design to prototype test. Korea is outstanding country and our role model."

"What a complement! Please take a look at the sample grains dried by the pretest for you. We will show you operation principle and how to operate the dryer through a test run."

"The dry quality is excellent! We are relieved to store grains in the rainy seasons as well."

People at the meeting were amazed and satisfied with the performance and quality of the prototype. Initial drying capacity that agreed at 130kg

per day a couple of months ago was requested to increase double at the meeting because of the rapid increasing demands than previously anticipated. According to the request, we made a modification to the design and the dryer was to be sent once completed. In the meantime our team searched and selected a site for IP sharing project and worked to be ready for follow up inquiries on the arrival schedule. At the same time we were rushing arranging our business trip because we also needed to discuss the maintenance plan for the dryer.

solar power smart grain dryer becomes smarter with Appropriate Technology Research Center

School of agriculture has a 10 hectare farm in Makerere university and it produces crops for stock feed and sells directly to a local stock feed producing company. Because we didn't have enough time to choose the site for the project, we talked to Agriculture Research Center and decided to install our dryer in the farm within the university. The location was the most suitable in various aspects; secured electric facility, the roads for solar panel control, a storage that expedites process nearby, abundant sun light and less security issue.

"When Korean solar power dryer is installed in the university we are going to let farmers nearby use it at low price so local farmers make use of it without economic burden and it will ultimately increase their production quality and income."

"That is a good idea. It is also good for us too if this goes viral. Then we will need some education program for general use."

We also had a meeting with Samsekha, the largest local stock feed company and a Korean pig farming company in Uganda on rental contract and

use of our dryer. As per increasing attention, a local organization to manage facility and conduct follow up research was required. As a result of serious discussion with Makerere University, Uganda Registration Service Bureau, Department of Agricultural Development and Chonbuk University, a long exchange partner of Makerere University, we determined to establish the third Appropriate Technology Research Center in Uganda.

Professor Hakyo Lee who offered so much advice on this project overwhelmingly said, "I can not believe Korean Appropriate Technology Research Center is established in Uganda. When we first started exchanging with Makerere University, Nothing was easy. Locals were not welcoming and just wanted us to give them money and leave. We are going to support you in every way possible if you need anything!"

Even though Chonbuk University has excellent school of agriculture that leads development of agriculture and stock breeding in Korea, It was not easy to earn trust in Uganda at the early stage of their exchange. He said he could help having all mixed feelings watching from technology transfer and establishment of research center that allows future exchange and collaboration in only 7 months.

"I believe everything was possible with your unveiled effort done for a long time. We should be thankful. We hope our AT Research Center help you and Makerere University with collaborative research in the future."

We hope Uganda becomes best farming country in East Africa

Solar power smart dryer system made in Korea arrived Mombasa in Kenya in a month since it left Pusan port and arrived safely in Kampala, Uganda after 10 days. We felt happy and sad that everything would be over after

final inspection of the site for installation. And we wanted to finish it perfectly without any mistakes to the end.

The next day, our team went to check parts of the dryer that arrived at the site to be installed. All parts, solar panel, equipment and control were in perfect condition without any damage or malfunction for installation. Technical training for local staff and general management and supervision for the site for greenhouse installation were followed. The drying facility is installed as the form of Korean greenhouse. Seperate electric work was done in order for solar power control to be installed in the storage next to the drying facility. The control box needs to be in the storage as it automatically detects temperature and humidity of the location and keeps it in optimal conditions for drying. To prevent humidity or insect from the earth, drying shelves were installed inside the greenhouse and drying capacity per day was doubled from the initial design, 260kg per day. Our work was all done. From the test of the dryer and the opening ceremony of AT Research Center were finished smoothly. At the opening ceremony, solar power smart grain dryer is introduced throughout Uganda by the largest local press New Vision and Daily Monitor.

This project was the biggest above of all project as it needed endless work in such a short time thinking of several trips to Uganda that needs longer than 20 hours, staff and equipment involved, partners and universities from Korea and Uganda, research centers, a trading agent in Uganda, all those meeting and negotiation process. This will be remembered as the project required maximum capabilities of ours and our partner, Sinhan A-Tec's. Our part is done now but in Uganda it has just began. Just like local press described, we hope Korea technology contributes to agricultural and economic development in Uganda and this enables more exchanges between the two countries in the future.



Checking parts of the solar power dryer

smart control device



The structure of the dryer from outside

Inside the dryer

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

11

| AT and IP Sharing Cases |

Creating Sri Lanka's signature
coconut brand

11

Creating Sri Lanka's signature coconut brand

Crisis of Sri Lanka's major produce, coconut

Sri Lanka is known to be one of five largest coconut producing countries in the world thanks to its optimal soil and climate for coconut cultivation. Locals use coconut pulp and various forms of processed coconut such as coconut oil and milk for cooking. If Koreans have Kimchi, Sri Lankans have coconuts. One day, we received an AT (Appropriate Technology) support application from Sri Lanka National Research Center and it told us a totally different story; It said they had problems with coconut oil extractor and urgently needed our help.

COSTI (The Coordinating Secretariat for Science, Technology and Innovation) of the National Science Technology and Innovation in Sri Lanka contacted KIPO (Korean Intellectual Property Office) seeking for ideas to improve their coconut business; coconut oil extract technology and branding to enhance product value. In 2017, the following year, we select-

ed internal personnels to be in charge of the project and went on our first trip to Sri Lanka for investigation to find out local needs with external specialists for this project. We received a warm welcome by the Sri Lankans and the wonderful weather as we arrived at the airport. The hospitality cheered us up to continue our journey right to the production factory for on-site inspection.

"Let me begin with brief introduction of oil production process. Virgin coconut oil, the first to be produced, is the premium oil similar to extra virgin olive oil. Virgin coconut oil is extracted directly from raw coconuts and the second to be processed with the remaining flesh is the extraction of normal oil."

"Is the big machine behind an oil extractor?"

"Yes, It is. Ms. Won. However, different extractors are used by factories. Many village milling centers and homes use medium-sized extractors. For virgin oil, we mainly use German and Sri Lankan extractors. The German extractors deliver quality performance with a high price, whereas Sri Lankan products is cheaper with no comparable quality to the German's. For normal oil, we mainly use imported extractors from India or China."

"That normal oil extractor is made of general metal not stainless steel. I assume there must be a problem with the quality of oil or maintenance?"

"Yes. That's correct. Metal machine is vulnerable to humidity therefore, the oil processed is highly likely to be exposed to rust as well. It's one of the reasons why we could not go into mass production."

Even though NERDc (National Engineering Research and Development Center) of the National Science Technology and Innovation in Sri Lanka, a partner of this project itself was working on developing oil extractors, many issues were found in productivity, maintenance and hygiene despite its price competitiveness. After on-site inspection, we had to go through a series of strategic meetings to define a clear goal for the project.



Starting from the left, large-sized oil extractor from India, medium-sized extractor from China and small extractor from Sri Lanka. They are all made of cast iron so, heavy, vulnerable to humidity and easy to rust.

Three extractors developed by NERDC. They are not very different from imported extractors from China and India in terms of its productivity and hygiene.

Both CEOs of a trading company and a branding company stressed the importance of improving coconut oil quality, noting that quality was the highest priority in the project.

“The biggest problem of coconut oil is that there no way to commercialize it with the current condition. I am very experienced in importing many rare food products from around the world. Cooking oil containing rust simply can not get import license. Even if it could be approved, who would buy a product with safety issues?”

He also added “Wonderful branding with a best creator is useless unless the quality does not get improved. Ultimately, the image of the product is affected by consumers’ comments.”

The key of all the issues was the technical ideas to address the hygienic problems and improve production efficiency of the existing oil extractors, and the Appropriate Technology that covers insufficient electric supply and limited materials in Sri Lanka.

Appropriate Technology for all

Meanwhile, Sri Lanka modified the original request from a small-sized oil extractor to medium-sized extractor which could be used in village milling centers and hotels. Because they believed small sized extractors would have less dissemination impact as homes have lower purchasing power. We accepted their suggestion and changed our initial plan to developing a medium-sized extractor. Our core task in the project became the development of a high electrical efficient extractor as it need higher capacity. We searched for expired patent information and invited technical experts to technical consultation meeting for their advice.

The oil extractor will be installed at the communal workplaces in the region and used by locals not by professionals. So we need to find and apply technology for extractors that is easy to use and manage.”

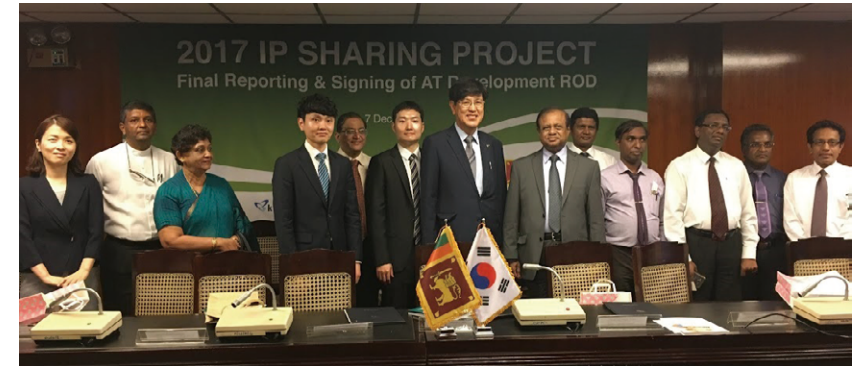
“Then it would be better to use stainless steel than metal in a long term despite its high cost. How do we start to produce? Is it possible to be manufactured locally if we send the design of the extractor?”

“Yes. Our partner, NERDc has a production facility. However, we learned that production would be cheaper in Korea so, only one of three will be made in Sri Lanka and the rest will be made in Korea and then shipped to Sri Lanka.

While drawings and designs of oil extractors are in progress with experts’ advice, an official of KIPA and the branding company were conducting several rounds of surveys in Korea and Sri Lanka to develop an oil extractor brand and a certification logo for the coconut product. Sri Lanka Coconut Development Authority suggested that the new brand should have a correlation with Ceylon tea and Ceylon cinnamon, the signature products of Sri Lanka, and we prepared the brand name and logo design accordingly. The draft designs will be finalized with installation, test and technical training of extractor during our 2nd business trip when the manufacturing is completed.

“I am going to tell you how our project went in development of oil extractors and related product branding in response to the request by Sri Lanka. It will be the best to show you the new oil extractor first. This oil extractor is a part of IP sharing project by KIPO and made by the help of several experts in the field. If you look at this closely....”

The oil extractor was designed to produce both virgin oil and normal oil from one extractor unlike the old one used before. The size, weight and noise of the extractor were reduced with better productivity using three phase motors on single-phase power. It was made of stainless steel material to ensure safety and maintenance of the extractor so there would not be any more hygienic problems in the products. Furthermore, less number of parts made it easier to be dismantled, assembled and washed. Officials who were listening with the full attention to the introduction of the new extractor made extra suggestions. We and local engineers decid-



Six-party RoD agreement signed for opening of Appropriate Technology Development Center



Opening ceremony of Appropriate Technology Development Center



OVOB Seminar



Certification logo to be used on coconut products



Brand experience zone operated at Vidatha Center

ed to produce the 2nd extractor with partial improvement from the suggestions given.

Hoping coconut becomes Sri Lanka's best selling product

Sri Lanka government expressed their desire to continue developing the technology of coconut oil extractor provided by Korea at NERDC so that they could produce their own extractors to replace extractors from China and India in the future.

On top of the extractors, we also developed a brand for the oil extractor and a Ceylon coconut certification logo. Expo Design corporation from Korea managed to create a satisfying brand after a number of changes made to the logo designs according to the customer's demand.

The local beneficiary, COSTI of the National Science, Technology and Innovation, voluntarily established Appropriate Technology Development Center to continue such development after termination of the project with related six coconut authorities.

Final reporting was held in the form of brand seminar in the Appropriate Technology Development Center opened in Vidatha center. At the reporting, we introduced the newly developed brand design and business opportunities for local coconut oil products. We also offered one village one brand seminar to key government officials from coconut related authorities and the Minister of the National Science, Technology and Innovation, and 200 local residents. The seminar raised their recognition of importance of intellectual property. The Major local press including ITN NEWS attended the event with close attention to IP Sharing project. Susil Premajayantha, the Minister of Science Technology Research of Sri Lanka thanked us for our help on development of Sri Lanka's coconut industry

from machine production to establishment of business strategy through branding and urging continuous support and cooperation to give Sri Lankan opportunities to learn from Korea.

"Finally the project is all finished. Mr. Cho and Mr. Ha, thank you for your hard work."

"No problems. It was my honor to have an opportunity to participate in this kind of help giving project."

As our project was officially over, we had to say good bye to our local partners whom we worked with for 7 months. They still remain as our most helpful partners by telling us they would offer help with any follow-up request and questions. Coconut oil extractor brand has now been registered, and the certification logo filing process is ongoing smoothly. In particular, the selected logo has the lion emblem which is Sri Lankan national emblem thus only entitled to be used on the approval of the President of Sri Lanka. It will help to increase the credibility and commercial value of the product once registration of trademark is completed. We look forward to finding Sri Lanka Ceylon Coconut Oil soon in the global market.

12

•

| AT and IP Sharing Cases |

Smart winter greenhouse brings greener
dining table for Mongolian children

12

Smart winter greenhouse brings greener dining table for Mongolian children

Our children need fresh vegetables throughout all seasons

Mongolia is located inland at 47 degrees north latitude and has a typical continental climate. This cold country has about five months long winter from November to March and It only has 1% of arable land. Due to difficulties in farming, nomadic life and stock farming have been developed in Mongolia for a long time, thus food culture has naturally been no choice but to be focused predominantly on meat rather than vegetarian diet. However, this meat dietary was not the best for health and growth of young children. Children need a variety of nutrients however, it is said that insufficient intake of fresh vegetables and fruits cause children in Mongolia suffering from nutritional imbalances, chronic shortages of vitamins and minerals. The Erudite Institute, a local non-profit educational organization, has been deeply concerned about this issue therefore, asked KIPO and KIPA for help.

‘As you know, Mongolia is known for its long and cold winters. In the coldest winter, the temperature often drops to minus 40 degrees Celsius at night. The weather condition here is too harsh to grow crops. So our farmers are trying to grow vegetables and fruits in greenhouse in the winter time. As far as I understand, the efforts has not brought us any desirable outcome due to the extremely cold weather. It is very difficult and unaffordable to get fresh vegetables for children in kindergartens. It will be great help for our children to grow much healthier if you could provide support for building proper greenhouse using advanced technology from Korea. I hope to hear good news from you soon.”

The AT support application from Tuya, the head of Erudite Institute included the detailed behind story. At first, we could not understand why she asked KIPO and KIPA for help to solve agricultural issues which seemed to have little relation to education. However, she was actually concerned that Mongolian children were frequently absent from school due to their poor health conditions and it affected their academic achievement as well. Having read her letter, we could understand why an educator sent such letter to ask for greenhouse development. The project feasibility study we carried out showed that the demand for vegetables has been steadily increasing in Mongolia. Even though Chinese products account for 90% of the produce in the market, yet still Mongolian consumers do not like Chinese products with distrust.

Among excellent domestic farming companies, we chose Sinhan A-Tec, a greenhouse control specialized company that worked with us in Uganda before.

“You have done greenhouse farming related business in the Philippines, haven’t you?”

“Yes, we have sold our greenhouse to the Philippines. However, in cold

country like Mongolia, it is unclear whether our products work well. Of course, we will do our best as we have several patents related to greenhouse technology, but we can not be 100% sure about the possibility unless we test it in the country.”

“You do not have to worry too much about it. We will find the useful patent information and share it with you. We can definitely find the way to solve technical issues if we work together.”

“Okay. We will consider this as a great opportunity to open up Mongolian market and do our best.”

Selecting a site is just as crucial as AT

Our first trip to Mongolia was in May, the best time to travel to Mongolia with no sign of the harsh cold winter. From interviews with local greenhouse manufacturer and preliminary research data, we confirmed that most of the attempts using glass greenhouse, traditional winter greenhouse and geothermal greenhouse did not work in Mongolian extreme weather. Can we successfully find out the problems of the previous attempts and develop improved one that works here?

We urgently proceeded with meetings with the local agricultural authorities, patent office and Erudite Institute to identify local specific needs and address procedural issues in greenhouse construction. At the same time, we hired a construction company to build greenhouse and started searching for appropriate sites. We listed areas with stable electric supply as we needed to install greenhouse automatic control system to quickly raise temperature inside the greenhouse in the winter time and keep the regular temperature. We also need to consider the distance and accessibility to the city for convenient transportation and the sale of the product from the greenhouse.

Comparing a couple of candidate locations satisfying those criteria, we chose an empty land in Nalaikh located 30 km from Ulaanbaatar, because there was a hill in the north that help block the cold wind from the north.

“The development of greenhouse technology for winter is the key project that Mongolian government is currently working on. We hope you build better greenhouse through lesson and learn from the failures of the previous cases.”

Mr. Tumurkhuyag, director from Agriculture Policy Bureau of Ministry of Agriculture who we met to introduce our project and request local cooperation repeatedly stressed their desperate needs for our technical support for agricultural development in Mongolia.

Odgerel, the director of the Office of Science and Technology Policy of Ministry of Education, Science and Technology, also said with great expectations; “I will do my best to spread greenhouse technology of Korea throughout Mongolia.” The pride that unsolved problems by any advanced countries was given to us with huge responsibilities fell on our shoulders. However, we believed we could do it with help of enormous public patent information and our partner’s technology.

On the other hand, we needed to reinforce electric power and irrigation facilities in advance to construct the greenhouse in Nalaikh where the appropriate technology would be applied. We and Tuya agreed that the beneficiary would do supplementary work on the local facilities while Sinhan A-Tec would check what was missing before start of the construction. We returned to Korea as we decided to visit the site one more time and check the progress once foundation work for greenhouse construction by the local constructor is finished.

Greenhouse is now Smart greenhouse!

Four months later, we were requested for further site inspection. In Mongolia, autumn was slowly fading away and winter was coming. When we arrived at the site, the fence wall was built to block the wind more efficiently. And the greenhouse was well built just as we instructed and it was also equipped with double ventilations, automatic ceiling cover and hot water heater. However, the centralized control panel for ventilation, water supply and heating were not finished and internet was not installed either. Those not completed needed to be finished as soon as possible since the greenhouse was scheduled to start operation from the coming winter. In this regard, And we recommended a company that could finish the job as quickly as possible in the meantime Sinhan A-Tec provided its design plan to the company. We all agreed to complete the supplementary work by mid-September. We decided to give it a try as man-control according to the local condition even though the smart control system of the greenhouse would be most efficient when connected to the internet. Once the greenhouse starts operating, the fertilizer for crops had to be used right away so, we requested water specialized organization to analyze farming water and to develop the most suitable fertilizer according to the result.

Having above issues been settled, we installed a smart control and carried out a test run. The smart control detects the climatic conditions of the installed area in real time and automatically adjusts the internal temperature of the greenhouse. This type of system was not never used in Mongolia. There were various greenhouse products such as glass greenhouses, conventional coal greenhouses and geothermal greenhouses, but none of those overcame extreme temperature differences between the day and night in Mongolia. However, the greenhouse we developed automatically detects the outside temperature and humidity through an external measuring device and adjusts the optimum environment for each crop in the

greenhouse, so that the productivity was calculated to increase about 5 times compared to those grown in other type of greenhouses.

"I've worried so much about extreme weather in Mongolia and This is much better than I expected! Thanks to KIPA for choosing us, Our engineers now feel more proud."

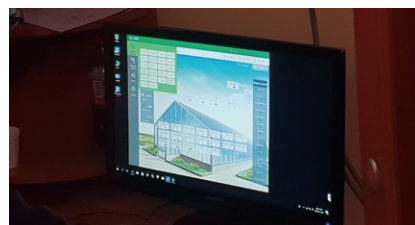
"I am very relieved to hear that. it is not too far for you to go into Mongolian market. congratulations!"

We were happy that night about that we were going to share what we achieved at smart greenhouse opening ceremony soon after. It was cold but that night in Mongolia we felt relaxed and warm from the bottom of the heart in a long time.

Dreaming of rich dining tables with full of fresh vegetables

"KIPO and KIPA successfully completed the construction of smart greenhouse in Nalaikh after great deal of efforts and several visits to Mongolia for a long time since May. I would like to express my gratitude to Mongolians who helped us throughout the process in various aspects such as the construction and customs. In the future, we will continue our support and exchange with Mongolia for improvement of productivity in farming in Mongolia."

The ceremony began with introducing IP sharing project and our achievement in Mongolia. And the smart greenhouse started operating upon the ceremony day and detailed operation technology and functions were demonstrated at the site after the ceremony. The Mongolian traditional greenhouse heated by coal was blamed to be main cause of environment pollution such as fine dust and various harmful gas not to mention its low efficiency. The smart greenhouse we developed shows



- | | | |
|---|---|---|
| 1 | 2 | 1. type cutting ceremony at the opening of smart greenhouse |
| | 3 | 2. Facilities inside the greenhouse |
| | | 3. Smart control device |

high thermal efficiency, increased production per unit area, and a drastic reduction in use of coal for greenhouse heating, instead, it uses circulating hot water. If smart greenhouse could spread throughout Mongolia there would be less air pollution to harm people's health. Smart greenhouse technology was an excellent choice for Mongolian's rich dining table and healthy environment.

Green house opening ceremony attracted great attention attended by local press and related officials from Mongolia and Korea. The interview with 'TV 5 Mongolia' enabled our project known in the nationwide.

Erdenesuren Erdenbat, the Director General of Intellectual Property Office of Mogolia (IPOM) expressed his appreciation by saying; "Mongolian farming environment has been significantly improved through this

project. I deeply appreciate efforts by all related people from Korea. and I hope we keep our close relationship with Korea and continue to learn from Korea's successful experience."

Ms. Tuya said they were going to grow children's favorite vegetables, cucumber and tomatoes. She promised to tell the children in the kindergarten that vegetables are fruits were grown from technology and effort by Korean. we are also very proud that Mongolian's dining table becomes greener and healthier. Just like Ms. Tuya's hope, we hope that the children grow healthy and become leaders for better relations of the two countries.



- | | | |
|---|---|---|
| 1 | 2 | 1. Interview with the local press |
| 3 | 4 | 2. Opening ceremony of smart greenhouse |
| | | 3. Opening ceremony of smart greenhouse |
| | | 4. Demonstration of smart greenhouse |

13



| AT and IP Sharing Cases |

Ma Chau traditional silk spreads throughout the world by AT (Appropriate Technology)

APPROPRIATE TECHNOLOGY
Co-Existence by IP Sharing

13

Ma Chau traditional silk spreads throughout the world by AT (Appropriate Technology)

Ma Chau, an old village with traditional silk manufacturing technique

Ma Chau is a small village in the rural area located an hour away from Danang, Vietnam, one of the most popular holiday destinations for Koreans. This barely known village, however, has over 500 years of silk production history. It once enjoyed its reputation as a traditional silk village in Vietnam using its 500 years of silk production technique from silk cultivation, textile, dyeing, production to selling by the local silk cooperative. Such reputation had already been long gone when we visited the village for project feasibility study in 2017.

Tran Huu Phuong, the head of the local silk cooperative, told us in a friendly and calm manner about the situations that the village is currently facing. People from KOTRA Hanoi KBC(Korea Business Center) and KOICA Vietnam office also gave us advice when we visited Vietnam for on-site inspection and project feasibility study.

“There was a time when our village was doing well in the silk industry. But now the silk industry has been pushed by cheap products from China and India, and now there are only 11 members left in our silk cooperative. In order for our silk industry to be revived, we need advanced technology and business information from Korea.”

“Quang Nam province is one of the poorest areas in Vietnam. I think it would be more effective to develop a sustainable profit model that allows villagers to survive on their own than providing one time aid.”

We selected Ma Chau in Vietnam as the next village for IP sharing project. We started our project one by one with finding a domestic specialist with silk production technology and a brand expert for promotion of the silk to be produced and sold in the future.

In 2018, the following year, KIPO (Korean Intellectual Property Office) and KIPA (Korea Invention Promotion Association) signed the multilateral MOU with the Department of Science and Technology of Quang Nam province and the People's Committee of Duy Xuyen district in order to initiate the project and held several in-depth meetings to identify local needs. In the meantime, the industrial base of Ma Chau became more vulnerable. Half of the members of the cooperative dropped out and the cooperative of the village became a private company as it failed to fill the quorum. But, never let a crisis go to waste. The crisis, on the contrary, enabled Duy Xuyen district and Quang Nam province to participate in the project as beneficiaries and expanded the project from one village, Ma Chau, to many silk companies in Quang Nam province.

“We are limited to compete with mass-produced imports in every aspects of production such as production manpower and technology. But we have one crucial weapon that they don't have and they could not even

follow.”

“What is it?”

“That is the story of the village, Ma Chau, where you live. If we use over 500 year of silk production history as this village’s identity and, to a further extent, a regional brand asset, our product could have the value of tradition and scarcity in spite of low production and a higher price.”

“Does that mean we can use our village as a tourist destination other than silk production?”

“In a long run, I think that is possible. But in order to do that, we need to prove Ma Chau’s quality silk products have been in the market for over 500 years.”

“Then I believe it is the most important to improve wooden textile weaving machine we are using now. It is old machine and both quantity and quality of the fabric are not good as it used to be. And we hope it would be improved so that we could weave patterns on the fabric and produce more various fabrics. Currently due to limited fabric, all we can produce is solid color fabrics.”

We finally came to the conclusion where to start after long discussions on ideas to improve the quality of the product and productivity, strategies to responding to competitors and, how to approach branding of the product. At that time, the villagers in Ma Chau were using a wooden weaving machine to produce silk which was vulnerable to humidity and not durable.

Unlike weaving machine in Korea which automatically stops running when thread on the roll runs out, local wooden weaving machine continues to run without thread causing reductions in efficiency and productivity. The only silk weaving machine manufacturer in Korea took the job to improve its technical problems. As for promotion and marketing of the silk



The above is a wooden textile weaving machine that was being used to produce silk fabrics locally. It had problems in production efficiency, production diversity and durability.



The above is a new silk weaving machine made by Sambo Engineering. Productivity increased by 30 ~ 40% compared to the conventional wooden weaving machine and work efficiency increased by installing an automatic detection system.

products, we decided to design a village brand logo and a local silk certification logo.

“As a matter of fact, Vietnamese government is also preparing Silk River Project to revive silk industry in Quang Nam Province. Fortunately, this meaningful support through IP sharing project for Ma Chau will be an integral part in commencing our five-year project from 2019. Thank you very much.”

“We will spare no effort to ensure successful launch of Silk River Project this year. Thank you for your cooperation in advance.”

Silk weaving machine transporting project from Daegu to Ma Chau

Lee Byung-ho, the CEO of Sambo Engineering played a key role in this project. We first met him when he was searching for business opportunities in the global market as the silk industry had been on the sharp decline in Korea. There are many companies with the latest technologies but it is hard to find a company with appropriate technology and the willingness to provide it. He has been strong and firm support in the project by putting detailed effort even though our business is not very profitable in the point of view of general businessman.

“We are absolutely confident of our technology. It is pity that there is very little demand we could not even find a place to use our technology in Korea. It is my honor to be able to join a well-intentioned project. If you need anything, please do not hesitate to contact us!”

The silk weaving machine was developed in Daegu, Korea, and it was an excellent machine that had higher RPM than the old one and the productivity was expected to increase by 30 – 40% as local requested. We

were able to send it to the village smoothly within one month of time as it went through Vietnamese strict customs clearance procedures with the direct help of the Qunagnam People's Committee.

Branding; transforming a rural village to a silk village

If the weaving machine is the engine to rebuild the village, development and management of the local brand is the lubricant to run the machine effectively. It was not only to increase the production of silk fabrics, but to create sustainable profits that could fundamentally improve the quality of life of the locals. Therefore, it was not a simply task to design a product logo, but we need an expert who has an insight that would bright up the future of the entire village through brand development. In that sense, Lee Ji Eun from Heritage Project, a local branding specialist who took part in this project was the perfect strategist as she found the exact needs of the beneficiary and drew out the best results possible.

She had an idea of developing a local brand from her first trip for project feasibility study and showed amazing initiative through her visit to the silk cooperative, in-depth interview with locals and comprehensive study on the culture, historic sites and environment of the village. based on the findings from the study, she enthusiastically developed a brand and conducted locals' preference survey on 5 different samples.

“Ms. Shin, this is the result of the brand preference survey responded by tourists in Hoi An. The preference of the locals and the tourists from all over the world can not be the same. You may be able to talk to local officials based on this result.”

“Alright. Thank you. We now need a local attorney to file these brands then.”



Brand preference survey conducted in the old city center in Hoi An, the most popular tourist destination in Quang Nam province

"Yes. I hope this filing and registration of the trademark process goes just like the customs clearance of the silk weaving machine. In addition to developing brand logos, I am also thinking of the ways to develop the village as a tourism resource by positioning it to a silk traditional village. I'll let you know once directions get clear."

Re-write 500 year silk history of Ma Chau

In November 28, 2018, the final reporting of the project was held in a small village in Quang Nam Province, Vietnam. A total of 100 people, farmers, entrepreneurs, high-ranking government officials who are barely seen in small towns and the Director General of Intellectual Property Office in Hanoi attended the event. On this day, everyone gathered here witnessing and celebrating the new beginning of the traditional silk that has lasted for over 500 years.

The first part of the event was in the form of a seminar at the Duy Xuyen People's Committee and followed by introduction of future business strat-



Part 1. OVOB Seminar

Part 2. Demonstration of Appropriate Technology

egies; the demonstration of Korean weaving machine and brand experience zone tour at the company, Ma Chau. In addition, new ideas to develop the entire silk village as a tourism product were suggested attracted the audience's attentions.

Tran Van Tan, the vice chairman of the People's Committee of Quang Nam Province said "I'd like to express my sincere gratitude to KIPO, KIPA and all Korean friends involved in the project to its successful completion



Part 2. Ma Chau Brand experience Zone

despite the tight schedule. I am sure that this will strengthen ties between Vietnam and Korea.

The People's Committee will not spare any effort to develop the silk industry."

Dinh Huu Phi, Director General of Vietnam Intellectual Property Office said "We are sure this project helps Quang Nam silk be widely recognized around the world. I would like to express my thanks once again to KIPO (Korean Intellectual Property Office) and KIPA (Korea Invention Promotion



Quang Nam Silk certification logo



Ma Chau Silk

Ma Chau silk logo

Association) for their outstanding achievements in this project. "

Project completion ceremony was pleasant and joyful. The heartfelt appreciation by the local working level officials was good enough to blow away all of the fatigue and burden from the project.

In Vietnam, the premium brand market is growing rapidly and local support program 'One Village One Commodity' is being run by the government. We think the success of this project may be due to the shared goal between our project and the Vietnamese government. Although the IP sharing project for Ma Chau is completed, reviving the silk industry of Ma chau has only taken its first step. We hope that Ma Chau Silk becomes a premium brand not only in Vietnam but also in the global market.

Epilogue

Sharing Makes the World a Better Place

After a long time, the various partners on the project got together: Tae-sung Kim, CEO of THINK-TOP R&D; Seung-hoon Lee, CEO of Toga Korea; Sin-ae Won, coordinator at Habitat National University; and Yee-chan Jung, the team manager from the Korea Productivity Center. Although they come from very different backgrounds, they all have two things in common: self-confidence and a passion for the work they do. As skilled professionals, they have pursued their respective fields with great enthusiasm and they did not hesitate to take a chance on the IP Sharing Project, and patiently endured many hardships in the process.

“When anyone says that something is impossible, I tell them that we can work it out step by step. When you set limits on yourself, that’s when your ability becomes finite. But when you set priorities and focus on them one by one, you can usually solve the problem eventually. Don’t forget to ask for help from others. There is usually someone around who can give you a helping hand.”

This was said by Tae-sung Kim, CEO of THINKTOP R&D, during his interview. The consensus is that the rest of our partners would agree. They are the kind of people who concentrate on solving problems rather than just worrying about them. That kind of proactive attitude is what got them where they are today.

But what struck me the most was something I saw in their eyes. Dur-

ing the interview, they all mentioned how impressed they were by the good-hearted locals. Their eyes reflected the truth of this statement.

On my way back home after the last interview, I couldn’t help but think that, despite their differences in regard to ethnicity, language, and living conditions, they all joined together under the banner of the IP Sharing Project. Maybe it was their warm hearts and goodwill for their fellow man that, more than anything else, was responsible for bringing them all together.

In general, when people share something with each other, it is usually something material in nature, such as money, used books, or clothes. But, people can also share their talents. In this way, KIPO’s IP Sharing Project can be viewed as a mechanism whereby one country can donate some of its talent to another.

Donations of money and other material goods are finite. But, the benefits of intangible assets, like knowledge or skills, can still be reaped long after material goods have worn out or expired. I hope to see more and more technology-minded individuals join us in sharing their prized talents. As long as such good-willed people are out there, global conditions can continue to improve for everyone.

Appendix

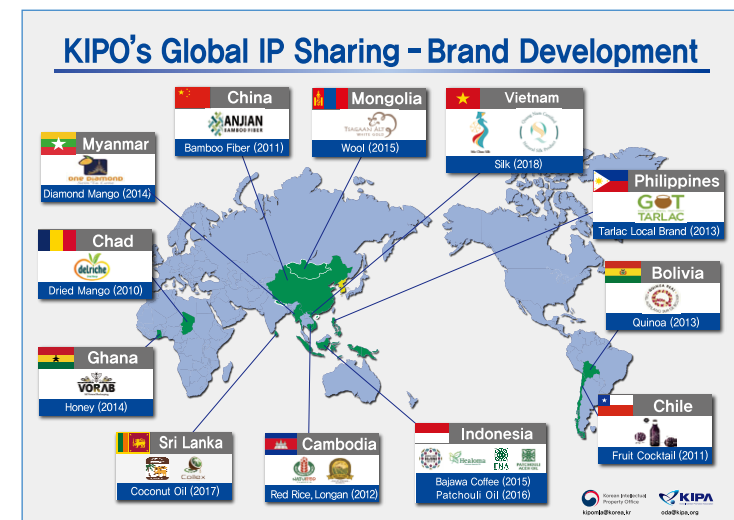
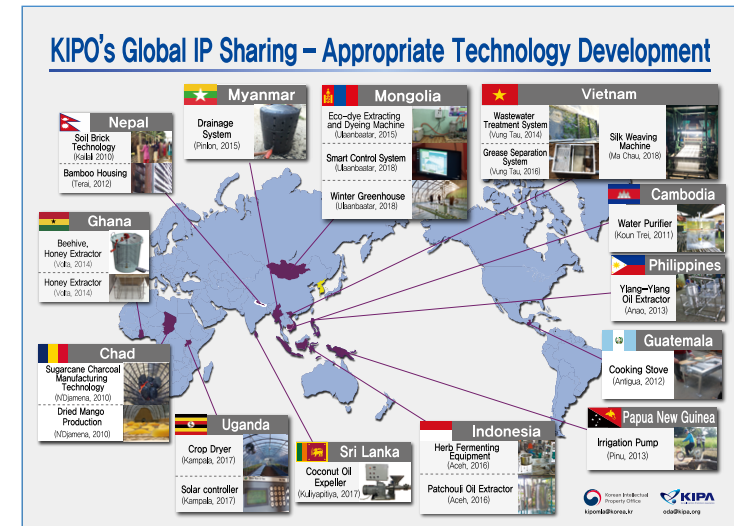
What Is the IP Sharing Project?

The Korean Intellectual Property Office (KIPO) has been pushing ahead with the Intellectual Property Sharing Project ever since it began working in Chad, Africa, to develop AT for turning sugarcane stalks into charcoal. The purpose of the IP Sharing Project is to provide developing/under-served countries with the knowledge and technology needed to help them overcome poverty on their own. In May 2010, as part of our efforts to strengthen Korea's position in the field of IP, and to better promote the global IP sharing movement, KIPO proposed that the project be included in the developmental agenda of the World Intellectual Property Organization (WIPO)'s Committee on Development and Intellectual Property (CDIP)—a proposal that was quickly adopted.

Tapping into KIPO's expertise in patents and technology, we developed various kinds of AT to be given to the beneficiary countries of this project. The results include: technology to produce charcoal out of sugarcane in Chad; appropriate construction technology to fully utilize local materials to solve housing problems in Nepal; a new oil extractor to improve productivity in aroma oil extraction done in the Philippines; improved indoor stoves that emit less smoke and have a higher heat efficiency; an advanced type of bicycle pump to greatly increase irrigation for farming in Papua New Guinea; a honey without damaging the structure of the beehive while being more economical; a decentralized water treatment system for environmental improvement in Vietnam; and an improved Eco-dye extracting and dyeing machine that merges two technologies in order to reduce costs and improve productivity in Mongolia.

In addition to the AT dissemination efforts, KIPO is also engaged in the One Village One Brand Project, which involves developing quality certifi-

cation marks or brands for agricultural products or handicrafts produced in regions or villages in need of our help, thereby increasing income levels



Korea's Appropriate Technology Project Map

for local households and improving their quality of life over the long term. KIPO has also been working to provide brand development and trademark application support for our clients; for example, the launch of a dried mango brand in Chad, Africa; a wine cocktail brand in Chile; a red rice and longan (a type of tropical fruit) brand in Cambodia; and an organic quinoa brand in Bolivia.

In doing so, KIPO is taking the lead in sharing Korea's developmental experience with developing/underserved countries, a role that befits its position as one of the leading IP offices in the world. In addition, the IP Sharing Project is in line with the Korean government's national agenda, "Trustpolitik," which stipulates that Korea will continue to increase the volume of its official development assistance (ODA) and push ahead with comprehensive developmental cooperation.

APPROPRIATE TECHNOLOGY

Co-Existence by IP Sharing

Authors

Korean Intellectual Property Office (KIPO)

Si-Young Park Director of the Multilateral Affairs Division
Jung-Ok Shin Deputy Director of the Multilateral Affairs Division
Young-gwan Gong Assistant Director of the Multilateral Affairs Division

Korea Invention Promotion Association (KIPA)

Seung-bo Kim General Manager of the International Development Cooperation Division
Hui-jae Won Team Manager of the International Development Cooperation Division
Hyun-Jeong Lee Senior Staff of the International Development Cooperation Division
Kwang-min Ahn U.S Attorney of the International Development Cooperation Division

Publishers

Korean Intellectual Property Office (KIPO)

Address: Government Complex Daejeon Building 4, 189, Cheongsu-ro, Seo-gu, Daejeon, 35208,
Republic of Korea

Tel: 82-42-481-5067

Website: <http://www.kipo.go.kr>

Korea Invention Promotion Association (KIPA)

Address: Korea Intellectual Property Service Center, 131, Teheran-ro, Gangnam-gu, Seoul, 06133,
Republic of Korea

Tel: 82-2-3459-2800 Fax: 82-2-3459-2999

Website: <http://www.kipa.org>

Published Date

December, 2018

Story Embellishment

Kyung-Sil Cho

Design and Printing

Gookgo

