WORLD TRADE ORGANIZATION

Council for Trade-Related Aspects of Intellectual Property Rights

EXTRACT FROM MINUTES OF

MEETING OF THE

COUNCIL FOR TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS

HELD ON 11-12 JUNE 2013

ITEM 12 INTELLECTUAL PROPERTY AND INNOVATION: COST-EFFECTIVE INNOVATION

EXTRACTED FROM DOCUMENT IP/C/M/73/Add.1

AGENDA ITEM 12: INTELLECTUAL PROPERTY AND INNOVATION: COST-EFFECTIVE INNOVATION

12.1 United States

333. In suggesting today's agenda item, we wanted to build upon our previous interventions on Intellectual Property and Innovation, especially the theme of small and medium-sized entities.

334. Cost-effective innovation starts with a problem to be solved and a consumer need. For a customer who needs clean water, for example, the water treatment system needs to be affordable. An affordable water treatment system has a low initial cost, as well as a low cost to maintain the product. But affordability is not enough. Water filtration systems need to produce clean drinking water that tastes good. The product also needs to be durable, easy and enjoyable to use, easy to clean, energy efficient, portable, if necessary, as well as adaptable and attractive. Just because the product is inexpensive, does not mean that style doesn't matter.

335. Cost-effective innovation addresses all of these needs. For example, the United Nations has defined the related concept of "frugal innovation" as "a distinctive approach to innovation, which minimizes the use of resources in the development, production and delivery of innovative products, thus resulting in low-cost innovation that can become a driver of growth especially in developing countries. The four main features of frugal innovation are:

1. not just cost-reduction: the focus is on making better things, not just cheaper things;
2. not just products, but also services;
3. not just down-grading existing innovation; rather remodelling goods and services;
4. not just low cost, but also high tech.[1]

336. Some examples of cost-effective innovation are products that have had features removed or made with lower-cost inputs, so that they are less expensive to produce and maintain. A cell phone that is very inexpensive because it has few features is an example of cost-effective innovation. It provides the necessary service, without requiring the consumer to pay for unnecessary features.

337. In our TRIPS Council intervention in March 2013, we provided the example of Simpa Networks, which is a pay-as-you-go system for accessing solar energy, whereby a solar system is installed on a home, its resident purchases time and receives a code to unlock the system, similar in some ways to a prepaid phone. Simpa Networks has a patent application pending, which it credits as an important contributor to the company's full capitalization, under the WIPO Patent Cooperation Treaty. Great solar technologies already exist, but financing is critical for mass market adaptation and adoption in emerging markets. Simpa's IP assets play a big part. For Simpa, its IP assets are being leveraged to increase the flow of capital into the sector, including by reducing the risk to investors who provide much needed financing to make it all work.

338. Another example of cost-effective innovation that we provided in March was Wonderbag, a South African SME that developed a clean, heat-retention cooking solution that helps prevent smoke inhalation. It is produced locally in South Africa from recycled materials, which generates local employment. For Wonderbag, IP protection provides a way to share its technology, so that others can benefit from it.

339. As we heard at today's cost-effective innovation side event, social entrepreneurs like those at Liter of Light and Sarvajal use IP to deliver light and clean water at low cost to impoverished communities. The water purification device developed by Tata, an Indian company, is another example of cost-effective innovation in purifying technologies. It uses no electricity and costs only nine Euros.

340. In January 2013, the World Health Organization's (WHO) bulletin described a number of cost-effective inventions, such as the Lullaby baby warmer, a device used to help new-born babies adjust to room temperature. It is a low-cost medical device launched in India in 2009, and is now

[1]United Nations Economic and Social Commission of Western Asia, "Competitiveness of the ICT Sector in the Arab Region: Innovation and Investment Imperatives," Draft Report, available at http://css.escwa.org.lb/ICTD/2118/md1.pdf, 2013, p. 51.

sold in 62 countries, including Switzerland, at one quarter of the price of a conventional baby warmer. Features that demonstrate its effectiveness are that it is able to function despite power outages, voltage fluctuations, high levels of dust and pollution, and intensive equipment use.

341. Another example the WHO recognized is the result of a joint project of engineering students and their faculty at Rice University, physicians from the University of Malawi and the Texas Children's Hospital, and a Californian-based industrial design firm 3rd Stone Design. They have developed a bubble continuous positive airway pressure machine – known as a "bubble CPAP" – to help babies breathe. Bubble CPAP devices can cost as much as US$6,000 per unit, but the Rice bCPAP can be built for only US$160, and does not require any consumable parts, thereby lowering both the purchase price, and the cost of use and maintenance.

342. Cost-effective innovation goes beyond the world of consumer products and medical devices, and extends into agriculture. For example, in Rwanda, oyster mushroom farmers are learning new techniques to allow the mushrooms to be grown on a substrate of materials that is readily accessible in Rwanda. Products that are low cost and use local materials are at the heart of cost-effective innovation.

343. The United States Patent and Trademark Office's (USPTO) awards competition, Patents for Humanity, included at least two examples of cost-effective innovation. Kerosene lamps are used in many places to illuminate homes, even though it can cost up to 20% of the family's income and be very dirty to burn. One Patents for Humanity award winner, "Nokero" (for no kerosene) solar lights, will not only save these families money, but improve their health and safety.

344. I could go on, and describe additional examples of cost-effective innovation. Cost-effective innovators are a creative group. They are interested in solving the world's problems, so the list, however long, would be interesting.

345. I would also like to briefly discuss how cost-effective innovation is being integrated into the educational system in the United States. Many universities have begun to focus on cost-effective innovation. For example, Santa Clara University, which is in California, has a Frugal Innovation Laboratory. Other engineering schools promote similar learning and application of learning opportunities. For example, the Massachusetts Institute of Technology (MIT) D-Lab "stimulates economically viable solutions through developmental entrepreneurship, facilitates South-to-South transfer of technology and continually explores new models for scaling-up innovation and facilitating technology access."[2] At Stanford University, students can study "Design for Extreme Affordability". These are merely three examples, but "cost-effective technology", "frugal innovation", and "appropriate technology" are terms that are well understood by engineering and design students from the East to the West of the United States, and around the world.

346. What does this have to do with IP? IP is often the vehicle that innovators use to get financing to get their products to market. Even at 9 euros a water filtration system, companies such as India's Tata need (and have) patent protection. And they rely upon this patent protection to stop others from copying their hard work.

347. Part II, Section 5 of the TRIPS Agreement establishes minimum standards for the protection of inventions, so as to create an environment for inventors such as the inventors at Tata to protect their inventions.

348. Part II, Section 4 of the TRIPS Agreement establishes minimum standards for the protection of industrial designs, so that designers who seek protection can be protected from those who would copy their designs. Both industrial design and patents help inventors obtain the financing they need to commercialize a product, and especially to start up a new company.

349. Innovators of cost-effective innovation also rely upon trademark protection. A company cannot build up name recognition for its product, if many different producers use the same name, with different quality (and cost-effectiveness). Part II, Section 2 of the TRIPS Agreement

[2] Massachusetts Institute of Technology, "D-Lab: Development through Dialogue, Design and Dissemination," available at: http://d-lab.mit.edu/about.

establishes minimum standards for the protection of trademarks. Trademark protection enables a company to build its name recognition.

350. Of course, the TRIPS Agreement has many other important sections, and we look forward to continuing our discussion of the use of the TRIPS Agreement by the creators in our communities in future TRIPS Council meetings.

351. I began our intervention today by citing a UN study addressing frugal innovation. The authors note that "emerging economies can capitalize on a smart combination of open and frugal innovation … if countries foster the participation of local entrepreneurs" in globally interconnected technology platforms.[3] The study identifies IPRs as a critical part of such innovation platforms.[4]

352. This reflects the national strategies in emerging innovation markets in developed and least developed countries, as reflected by the statement of the President of Tanzania at the "African Conference on the Strategic Importance of Intellectual Property Policies to Foster Innovation, Value Creation, and Competiveness", held in Dar es Salaam on 12 March 2013. As he explained, "Putting in place appropriate IP policies and measures are critical factors in promoting innovation and competitiveness, which play key roles in economic growth and sustainable development. It is for this reason that many African countries have been taking serious steps to embrace, anchor and nurture IP."

353. Similarly, the Office of the Advisor to the Prime Minister of India issued a strategy paper entitled "Towards a More Inclusive and Innovative India", which recognizes the important role IP has in stimulating innovation, and promoting the development and commercialization of public-funded research.[5]

354. We look forward to hearing from delegations about their existing IPR policies to promote such cost-effective innovation.

12.2 Canada

355. Innovation is crucial for increasing productivity and solving problems that emerge in society. Innovation comes in many forms and its nature is unpredictable. While innovation can be a large-scale venture, where a new product or service such as a Blackberry, has fundamentally changed the way we do business; it can also be a low-cost internal innovation such as improving a process in a small business that can lead to dramatic savings in the way the business operates, or as we saw at the side event today – dramatically enhances the lives of people.

356. Innovation is about responding to change in a creative way. It is about generating new ideas through research and development, improving processes or revamping products and services. At another level, it's also about a mindset, focused on continuous improvement, increasing productivity and growth, by constantly thinking outside of the box. Governments can help foster an environment that encourages innovation and we hope that this dialogue in the TRIPS Council is useful for sharing ideas.

357. This innovative mindset does not depend on large financial backing. While low-cost innovation occurs on a regular basis, the path from initial ideas to commercialization can be complex and difficult to navigate at times. Governments can help maximize opportunities to bridge the gap between innovation and commercialization, enabling the development of products and processes with the least amount of time, resources and costs expended that will help generate results.

---

[3] United Nations Economic and Social Commission of Western Asia, "Competitiveness of the ICT Sector in the Arab Region: Innovation and Investment Imperatives," Draft Report, 2013, p. 51, available at http://css.escwa.org.lb/ICTD/2118/md1.pdf.

[4] United Nations Economic and Social Commission of Western Asia, "Competitiveness of the ICT Sector in the Arab Region: Innovation and Investment Imperatives," Draft Report, 2013, pp. 65, 72-3., available at http://css.escwa.org.lb/ICTD/2118/md1.pdf.

[5] Office of Advisor to the Prime Minister, Public Information Infrastructure and Innovations, "Towards a More Innovative and Inclusive India: Creating a Roadmap for a Decade of Innovation", Strategy Paper, March 2011, p. 20, available at: http://www.iii.gov.in/images/stories/innovation/Innovation_Strategy.pdf.

358. Canada recognizes the importance of low-cost innovation and has in place programmes encouraging partnerships that leverage public and private S&T resources. For example, the National Research Council of Canada administers a medical devices programme that helps companies to grow with new sources of productivity and competitive advantage, by providing customized research and technology solutions. This helps their clients develop compact, innovative medical technologies that provide rapid, sensitive, accurate and low-cost solutions. This programme further serves to foster low-cost innovative solutions, as it provides coordination support through all levels of government and healthcare stakeholders.

359. Another example is the Canadian Natural Sciences and Engineering Research Council's Engage programme. The Engage programme provides companies with access to the knowledge and expertise available at Canada's universities to support short-term, R&D projects that solve a problem specific to the company's needs. This flexible programme provides access to specialized facilities and equipment and highly qualified people, who can rapidly deliver creative ideas and practical solutions.

360. As low-cost innovation solutions are brought to the market and adopted, we encourage Members to consider how they might play a role in providing IP advice and commercialization support to develop technologies that will have beneficial economic and social impacts around the globe.

12.3 Korea

361. The international IP community can achieve greater things by working together for the mutual benefit of its members, especially by sharing IP with each other and by working towards sustainable economic development.

362. At this meeting, we wish to share our experience by putting forward our "IP-Sharing Project" for developing countries. Most developing countries need technological information that is not necessarily advanced but is rather useful in solving basic issues such as shortages in clean water, energy, food and housing. This technology, which we often call "Appropriate Technology", is technology that can be applied to 90% of the population in developing countries and can solve the most basic problems for people living in these areas.

363. The aim of the "IP-Sharing project" is to disseminate information on appropriate technology so that locally available technologies can be used to satisfy the aforementioned basic needs. As part of the project, we have set up an IP Share Website, which provides access to a database of more than 200 technological solutions for basic needs. The "IP-sharing project" works as follows: firstly, we survey the technological needs of local people by investigating local problems, requirements, circumstances, lifestyles and cultures. This is done in line with specific requests from recipient countries and by collecting information through various channels such as NGOs, including "Habitat for Humanity" and "Good Neighbors", branch offices of private enterprises, Korean embassies and international organizations. Secondly, we conduct prior art searches from a database of 150 million patented technologies for resolving local problems. Thirdly, we collaborate with technology experts to adapt the selected technologies to the local climate, environment and user conditions. Fourthly, we distribute the final version of the improved technologies or prototype models to the targeted local community. Finally we commercialize products to generate income for local residents and develop stable business operations for the local community.

364. One example under the "IP-Sharing project" is sugar cane charcoal. Due to a governmental logging ban, the people of a country in the African region faced difficulties in obtaining lumber, which is necessary for fuel and the production of charcoal for cooking and heating purposes. Researchers found that sugar cane peel, which is readily available and easily obtainable, can be substituted in manufacturing charcoal. After analyzing the technology involved in the manufacturing of charcoal, researchers performed prior art searches and then developed prototypes. Later, tests were completed for the localization of prototypes. The researchers involved in the development of the technology were dispatched to the country to test the prototypes in the actual environment where the technology would be used in order to transfer the technology to the local residents. The Korean IP Office and the related organizations will continue to support the establishment and operation of social enterprises to help generate income for the local people in manufacturing sugar cane charcoal.

365. Another example is soil brick. In 2010, based on the results of study-visits to a region located in an Asian country, the Korean IP Office had discovered the technological need for a number of issues including soil brick manufacturing, food storage, and water purification. Most of the people in some areas of the country live in mud houses which require frequent repairs. Solid and long-lasting bricks are expensive in that country. Appropriate technology is needed to manufacture high quality, yet inexpensive bricks made of soil that can be easily supplied in that region. Having identified this need, we collaborated with a Korean university institute to develop and distribute a simple brick-making technology. This type of technology is an alternative to more expensive methods of fabricating high-quality brick as these alternatives are made of soil that is readily available in that country.

366. A final example is stove. In 2012, Korea developed a stove for a country which has a high level of energy efficiency compared to the various stoves, which had previously been sold in local markets. Doing so would thus reduce the difficulties and inconvenience for local people as they would not need to collect firewood for cooking on a daily basis.

367. The above examples demonstrate that Korea has tried to narrow the IP divide among countries and promote simple and efficient technologies for use by developing and least developed countries. We believe that this kind of efforts were possible with the appropriate technologies, which have been developed and protected in an appropriate way. From our perspective, the link between innovation and IP is often small at the beginning, but the ultimate effect will be enormous.

12.4 Chile

368. Chile has joined Canada, Chinese Taipei, Korea, the European Union, Switzerland and the United States in co-sponsoring this agenda item as we believe that innovation, and particularly cost-effective innovation, contributes tremendously to society by providing access to new creations for a wider audience. Our objective during this Council meeting is to share examples of innovative products or processes that are low-cost, effective and high-impact, and that are produced by small enterprises with limited resources. I would like to mention a few examples from our country:

369. The story of Nicolás Tironi from Tivar helicopters is an example of entrepreneurship through innovation. Tironi works in fumigation, in improving the application of products and reaching places inside plantations that were previously inaccessible. He developed an aerial application process using electrostatic helicopters (technology that did not exist elsewhere in the world) based on prototypes of crop-dusting planes that had previously unremarkable results as they flew over plantations faster and were more difficult to manoeuvre.

370. Less than a year after the project was implemented, the company was carrying out 98% of its crop-dusting work using this revolutionary system. Not only did it mean significantly lower costs for producers but it also reduced the use of pesticides by 20 times, thus benefitting consumers in general.

371. A high-impact project has been developed in Chile that could revolutionize access to drinking water. It involves a low-cost water purifier using plasma-based technology to eliminate germs and bacteria from contaminated water and provide a continuous supply of clean water free from bacteria and suitable for consumption. The purifier can sanitize two thousand litres of water every 24 hours and the best part is that it costs very little and only uses 100 watts of energy to purify 35 litres of water in five minutes.

372. The Plasma Water Sanitation System (PWSS), which costs around US$200, pushes the water through a pressurized chamber, where it is atomized and accelerated to a high speed. Next, the water is exposed to an electric field which converts it into plasma particles, thereby eliminating 100% of bacteria or microbes, before it is turned back into safe drinking water.

373. Launching the project on an international scale will revolutionize drinking water systems particularly in hard-to-access areas such as settlements in Latin America or in African countries. Every day around 6,000 children die from conditions and illnesses related to water scarcity.

This low-cost innovative process can solve a problem that affects more than 80 million people in Latin America and over 2 billion people worldwide.

374. I would like to quote the words of one of the individuals who invented this system: "Our goal is to break the paradigm and show that technology and poverty can in fact interact. Poor people do not have access to technology and if they do, it is usually outdated. What we are trying to do with these projects is develop advanced science and apply it to real problems that are left over from the past and that are growing, such as the issue of access to drinking water. The challenge lies in showing major companies the effectiveness of business models that place innovation at the disposition of the people most in need and then seek business applications." A patent application has of course been filed for this invention under the PCT system.

375. Another example is a piece of software called "Prey" that is installed on computers and activated if the user reports the device stolen. When this happens, a tracking system is triggered that uses the Wifi network to which the computer is connected and takes photos of the computer users, which are sent to the owner. The software currently has around 1 million registered users.

376. Lastly, the Consorcio Tecnológico en Biomedicina Clínico-Molecular (Technology Consortium in Clinical Molecular Biomedicine) has developed a technique that detects thyroid cancer, in order to increase the precision of pre-operative diagnoses of malignant tumours. It is a very simple test involving a fine needle aspiration biopsy, and the small sample taken allows a molecular profile to be created. As the test is extremely precise, patients do not need to undergo unnecessary surgery.

377. All these innovations are highly effective in terms of production costs and costs for users and have been developed by small and medium-sized enterprises (SMEs) and non-profit organizations that are fighting against poverty with limited resources, but that may have a high impact on society.

378. As we mentioned at the last session during our discussion on SMEs, Chile has created several programmes to encourage entrepreneurship and productive development in its local communities and small businesses, thereby promoting innovation and the use of intellectual property through an effective yet balanced system in which IP serves as a tool for development and an incentive to develop new technologies.

379. We hope that these contributions will assist the debate on the relationship between IP and innovation in this Council.

12.5 Switzerland

380. Cost-effective innovation is not only determined by the R&D strategy of the individual inventor or an innovative company. External factors such as the regulatory framework and the national innovation policy of a country also play a significant role. The government needs to ensure that public funds to foster innovation are allocated in the most cost-effective way. One element of this framework is an adequate and effective patent system. If there is no such system in place, innovation and technology transfer may not happen, since investments in R&D by private companies and their readiness to share and transfer their innovative technology with potential partners are discouraged. One prerequisite of cost-effective innovation may thus be an institutional framework which allows investment in research, enables the transfer of technology and return on investment into the commercialization of such technology.

381. Switzerland would like to share some of its experience on how innovation and knowledge transfer between research institutions and SMEs may be facilitated for this purpose. We briefly present Switzerland's approach to research funding, a system which has proved effective and successful.

382. Switzerland operates a two-tier system with basic research on one hand and applied research on the other hand. Talking about basic research first, the Swiss National Science Foundation is the most important instrument of the Swiss Confederation for the promotion of research and development of a new generation of researchers. The foundation was set up in 1952 and supports research at Swiss universities and independent research institutes. The main thrust

of the foundation's activity is the financing of individual projects in the area of independent research, assessed and chosen according to qualitative criteria to identify the most talented individuals and the most promising programmes.

383. Turning to the area of applied research, Switzerland operates, inter alia, an innovation promotion agency, the Commission for Technology and Innovation (CTI). This agency lends support to R&D projects, to established companies but also to start-up companies. The CTI thus focuses on the transfer between academic or educational institutions to the private sector. CTI makes the provision of grants conditional on an agreement, which covers among other aspects, the ownership of the IP involved and the sharing of revenues generated.

384. An example of a private foundation which supports young scientists and which is committed to providing project-related start-up financing to fund projects which may trigger a broader impact is the Gebert Rüf Foundation. This foundation aims to use its resources as a form of risk capital financing, subject to ongoing evaluation, to provide a platform for pioneer approaches and to help get novel pilot projects off the ground. The foundation is not a mere sponsor or distributor of funds, but a partner and active member of the project team. This means that conventional grant allocation goes hand in hand with strategic and effective action.

385. An example of such a pilot project, funded together with the Swiss Federal Laboratories for Materials Science and Technology (EMPA) and implemented by private enterprises, was the development of a smart cable-stayed bridge; a project which started in 2003 and was completed in 2011. The model of a cable bridge enabled a number of sub-projects to be carried out in the field of vibration mitigation and safety monitoring of structural materials. It was this cooperation of private and public know how and funds that made these innovation projects cost effective and – in the case of the cable-stayed bridge – a success not only for the researchers but also for the people in Thailand using this type of bridge, for which some of the new technologies were put in operation for the first time.

386. Information on research projects and assessments, which are either run or funded by the Swiss Confederation, can be found on the ARAMIS information system, www.aramis.admin.ch.

387. In a nutshell: experience has shown that a cooperative approach to innovation, to research into solving technical problems of the society, to technology transfer, and to implementing solutions, much increase the potential to achieve a successful and cost-effective process of innovation. Cooperation between the providers of basic and of applied research, between institutions and private industry is facilitated and in many cases made possible thanks to licensing (of IP and patents in particular). It is through licensing agreements that results of basic research can be transferred to institutions which are capable of applied research and which can support their final commercialization. The basis of such a cost-effective cooperation, the licensing partnership and with it the sharing of the benefits from the innovative process, is the patent system. It contributes to allow different players with different capabilities to form a partnership and leverage synergies.

12.6 Chinese Taipei

388. 97% of all our enterprises are SMEs and they are not only models of sustainable development but also the powerhouse of our economy. For us, it is therefore essential that we implement programmes and projects in IP management and deployment strategies that provide support for SMEs. We have established a bridge between right holders and potential users with a website that acts as a platform for information exchange and technology transactions under the auspices of the Technology Marketplace Project.

389. Also, with the Intellectual Property Management System (TIPS), we have helped SMEs to build up their own IP management systems and sharpen their competitive advantage, by providing the resources to hold consultations, experience-sharing, workshops and training courses. And, last but not least, we have created an IP service platform through the Innovative SMEs IP Value Project, in which tailor-made consultations and diagnoses are provided to help individual SMEs to strengthen their patent deployment in the R&D phase - or, in other words, to shorten the process and to increase the benefits of R&D.

390. We have examples of SMEs, such as the Jintex Corporation, the Taiwan Shin Kong Security Company and the Everlight Chemical Industrial Corporation, responding so positively that they have managed to significantly reduce the time spent on R&D by focusing on the orientation of their technical and product development, and securing their trade secrets more effectively. Others, like the Mastech Innovation Corporation Ltd., for example, have realized the importance of IPRs in their processing of transactions and looked for assistance from the Innovative SMEs IP Value Project. We have helped Mastech to become better equipped with knowledge, patent research and analysis skills, as a basis for their product development. They have successfully developed plugs, sockets and lock devices for uninterruptible power supply systems, and applied for patents simultaneously. Mastech is now an innovative and profitable ODM company.

391. Because SMEs are so crucial to our economy, and yet are lacking the resources to develop their IP management and deployment strategies, the support provided to them to increase their capacity for IP creation, protection and application, produces tangible benefits for the whole economy and the community.

12.7 European Union

392. Global challenges are important drivers for research and innovation. Our planet has finite resources which need to be cared for sustainably; climate change and infectious diseases do not stop at national borders, food security needs to be ensured across the globe.

393. One of the key objectives of the European Union's international R&D strategy is tackling global societal challenges by developing and deploying effective solutions more rapidly and by optimising the use of research infrastructures. In November 2012, the High Level Economic Policy Expert Group for Innovation for Growth recognized that research and innovation (R & I) had to be focussed on smart, sustainable and inclusive growth. To this effect, it expressed its preference for frugal innovation in the global perspective. This same expert group has chosen "inclusive innovation" as one of the four major topics for its 2013 work programme. Frugal (or inclusive) innovation allows innovators to do more with less and thus benefit more people with little or no buying power.

394. There is a possibility that the EU's new overarching Research and Innovation programme, "Horizon 2020", could include specific activities on frugal innovation. Horizon 2020 will run from 2014 to 2020. It will be fully open to participation from all over the world. The European Union will cooperate with third countries to jointly advance scientific knowledge and tackle global challenges, while safeguarding the EU's interests.

395. Many EU Member States are already involved in R&D in the field of frugal (or inclusive) innovation. It is a subject increasingly discussed in the academic and business worlds as can be seen by the number of seminars and conferences bringing research institutes, businesses and NGOs together. To cite but a few that have hosted or participated in seminars in the past year are INSEAD (the European Institute of Business Administration) near Paris, the Grenoble Engineering Institute, Delft University of Technology, Oxford and Cambridge Universities, and the Hamburg Institute of Technology.

396. Some of the major EU companies such as Schneider Electric, Unilever, Siemens, Nokia and Renault-Nissan have all embraced the frugal innovation attitude, both at home and abroad. Products are being sold in smaller quantities and packages, being produced using equally effective but cheaper technology, vehicles are being produced and sold at a lower cost but in line, of course, with the EU's strict security standards. Manufacturers are becoming eco-friendly, not only as regards the end products, but also in the methods they use to manufacture, the raw materials they use and company infrastructures and logistics. The initial costs of transforming the company and processes are compensated by future sales in larger quantities.

397. Frugal innovation is also well suited to and stimulated by developing country populations and situations: low buying power, but a high volume driven market. An increasing number of EU companies are also establishing R&D centres outside the European Union and notably in the emerging economies. These can take the form of international joint ventures, a third-party offshore outsourcing contract or cooperation with academic and/or research institutions abroad. Some large EU companies (such as Siemens and Bosch) have longstanding business activities, for

instance, in India, including R&D. They located R&D in India to participate in this fast-growing market, but also to anticipate new technology trends such as frugal innovation. These are real live examples of transfer of technology taking place.

398. Frugal innovation can certainly no longer be ignored and will play a big part in future innovation for the benefit of all countries. However, a number of issues need to be considered beyond the pure innovation perspective when producers of innovative products contemplate entering a foreign market or researchers move to third countries to collaborate on projects.

399. As an example, let me refer to what was recently stated by the EU Ambassador to India in the foreword of the *European Business Group* document entitled 'Innovation and R&D Activities of European Companies in India', in the context of the "*Indo-European research and innovation partnership*" currently being developed so as to further enhance the on-going collaborations, a possible iconic emblem could precisely be "frugal innovation", a concept that India has pioneered for the benefit of emerging markets, with many concrete success stories.

> *"However, a fully effective EU-India collaboration focusing on frugal innovation requires much more than a mere extension of EU companies' global innovation value chain so as to leverage India's talent and market. A radically new approach is needed, taking account of cultural differences and addressing a number of Indian hurdles ranging from the mobility of researchers (including visa issues) to weak university-academia interactions and to intellectual property issues. And this certainly applies to other emerging countries."*

400. To conclude, private business initiatives complement the European Union's external policies and instruments that build partnerships – in particular bi-regional partnerships – to contribute to the sustainable development of these regions and address challenges such as the green economy, climate change, improved agriculture, food security and health. The European Union also supports the Millennium Development Goals – and their possible successors – by strengthening demand-led research and innovation for development, in which frugal innovation will have a justified place.

12.8 New Zealand

401. New Zealand has taken a slightly different take on the theme of cost-effective innovation that focuses on the regulatory settings that promote cost-effectiveness and thereby facilitate innovation. On the theme of cost-effectiveness, there is some evidence that firms are finding national IP regimes expensive to deal with, particularly in such fields as patents. Some of our systems are issuing patents with falling levels of patent quality and associated backlogs. Critics say that low quality patents can impose unnecessary cost on businesses and consumers by restricting access to products and services that should be free for all to use. New Zealand's current patent system is prone to some of these criticisms. Our Patents Act was passed in 1953 and our criteria for the grant of a patent are relatively weak compared with other countries. It is thus possible for patents to be granted for inventions that are not new or non-obvious. But the new patents bill, once passed, will mark the conclusion of a lengthy process of reform and will bring New Zealand's patent criteria in line with international best practice.

402. Improving the quality of patents should also make it more cost-effective for firms to innovate, both because the threat of litigation will be reduced and because any patents that are granted under our regime will be more defensible. Updating our patent examination criteria will also enable New Zealand to pursue work-sharing arrangements with Australia. The single economic market agenda, which seeks to streamline the trans-Tasman regulatory environment, includes a single patent application and examination process that would allow the filing of simultaneous patent applications in Australia and New Zealand. Under this initiative, IP Australia and the Intellectual Property Office of New Zealand, which share examination resources and in doing so, eliminate duplication of examination efforts. This would not only reduce the cost to examine patents but also contribute to ensuring that high-quality patents are granted in Australia and New Zealand.

403. Under the SEM agenda, work is also being undertaken to implement a single trans-Tasman registration regime for Australian and New Zealand patent attorneys. The single registration regime will facilitate greater levels of competition between Australia and New Zealand patent attorneys, which should help to decrease the cost of businesses to receive advice and assistance to

protect their innovations, without compromising the quality of services currently available to Australian and New Zealand businesses.

404. These are just a few examples of some of the initiatives under way in New Zealand, which contribute to promoting cost-effective innovation. We appreciate the chance to share our perspectives on the role of a well-functioning IP system in promoting cost-effective innovation in our economy.

12.9 Japan

405. As we stated at the TRIPS Council's last session, where many Members shared their views and experiences regarding the importance of SMEs making use of IP, our delegation views it as beneficial that we deepen our understanding on how the IP system is actually linked to business and innovation. Developing a common understanding of such "linkage" may lead to meaningful and constructive discussions at this Council.

406. In line with this agenda item on "IP and Cost Effective Innovation", we would like to recall that, at the last session, we introduced one such case. It was a case in which a traditionally round fruit was made into a square one, illustrating that innovations don't necessarily depend on huge amounts of financial backing or large capital investments. We also can see that innovations don't always result from the latest R&D activities conducted by major companies and universities.

407. In looking at how excellent ideas originating from SMEs and individuals can lead to great innovations based on utilizing IP, we would like to introduce another example. It involves a vegetable farmer who created a business opportunity that went beyond the boundaries of agriculture. He developed a three-dimensional packaging container that can be used to distribute vegetables that he grows. He then acquired a patent for it. Details about this packaging container, called "Pattruss" can be found at http://www.pattruss.com.

408. Even though this farmer developed a new packaging container that can be used to protect vegetables so that they don't get bruised or squished during their distribution, the new container can also be opened and used "as is" as a plate. By obtaining patent rights overseas, he was able to forge a business deal so that his container could be used as a packaging container in the European market. This packaging container has attracted attention in the food industry, with the farmer having received many requests to establish licensing agreements for it.

409. In developing this packaging container, the farmer, in addition to the functional elements, attached great importance to the design. The product has thus also been given good evaluations for its design, winning several design awards. This has also contributed to expanding business opportunities.

410. As indicated in the aforementioned cases, even individuals and SMEs are able to link their technology and designs created at a low cost to fantastic business opportunities by properly protecting them as IPRs. We wish to emphasize once again that the IP system is an important tool to support business and innovation, not only for developed countries but also for developing countries.

411. With a view to encouraging autonomous and self-sustained economic development, this delegation believes that it will be advantageous for each Member to adopt useful measures suited to its own strategy and initiatives. In this regard, it is useful for Members to share information about cases in which IP was successfully utilized. We welcome further discussions at the Council on these matters.

12.10 Australia

412. We welcome the opportunity to talk about cost-effective innovation. We would also like to thank New Zealand for the overview it has provided on co-operation between Australia and New Zealand in relation to patents. This is part of broader efforts by Australia and other countries to enhance international cooperation and work sharing in relation to the patent system.

413. In past Council meetings, Australia has provided examples of the positive link between IP and innovation. At this meeting, I would like to provide an example of how Australia's IP system has supported cost-effective innovation to address climate change issues.

414. This example concerns an Australian innovator who wanted to reduce the cost of measuring vehicle pollution, a common problem whether you are in Sydney, Bangkok or Dakar. Traditional methods for measuring air quality require a large storage space, filled with over a million dollars' worth of equipment operated by highly skilled staff. Was there a way to make the technology more accessible and affordable so that it could be used internationally? By conducting a survey of patent databases in Australia and overseas, the Australian innovator was able to canvas what was already available in the market, investigate the use of particular technologies and use that information to create an entirely new and innovative product. This demonstrates how registering IP can contribute to the sharing of ideas and foster innovation. The final product was an instrument that can produce air quality measurements in less than five minutes, requires only minimal operator training, is the size of a shoebox and costs only a fraction of the price of other alternative systems. This cost-effective invention is protected by a patent and has attracted interest from Australian and overseas government and private sector organizations to help reduce the costs of measuring vehicle pollution. This is a good outcome for the Australian innovator, who can recoup the cost of his investment, but also makes a valuable contribution to monitoring a significant cause of climate change.

12.11 Brazil

415. I would like to recall that, in the last two sessions of the TRIPS Council, Brazil expressed the view that a strong and balanced IP system must rely on patents with sufficient description and an adequate examination of patent applications.

416. Granting of exclusive patent rights can only be justified to correct a potential failure in the market for technology and knowledge in order to foster innovation. That correction of market failure entails costs for the society. By establishing monopolies, however provisional they might be, protection of IP can impair market efficiency in allocating factors of production and other resources. To compensate for the possible costs of misallocation, the IP system demands, in return for the granting of exclusive rights, full disclosure of the know-how of the protected invention in such a way that society as a whole might benefit from it and build upon it. This essential trade-off in the patent system has another component: that inventions accorded such rights must be, according to Article 27 of the TRIPS Agreement, novel, useful and non-obvious. However, the manner in which these three conditions were transposed into national legislation and regulations remains one of the most intractable and divisive issues in the current international patent system.

417. Against this background, the greatest challenge for public policymakers was arguably the design for a theoretically "optimal" system that would be capable of generating incentives for investment in innovation, while at the same time minimizing losses caused by the granting of IPRs. The challenge was compounded by the fact that IP was far from being the single element driving innovation. It was only one in a larger mix of different tools to promote innovation.

418. Innovation is heavily influenced by factors other than IP, such as the industrial capacity of a country, the quality of its education, and access to raw materials. Similarly, the level of protection afforded by the IP system is not the only element stimulating technology transfer to developing countries. The importance of the receiving country's capacity and skills to absorb that technology cannot be underestimated. The mere increase in the degree of IP protection and enforcement rules does not, in and of itself, result in higher levels of innovation output. Thus, IP must be placed within the overall framework of public policies for innovation.

419. Exceptions and limitations have a key role to play in calibrating national IP systems in such a way that individual goals of each country can be realistically pursued and eventually met. Other mechanisms to mitigate the potentially adverse impact of IP protection have to do with containing its effects on key areas such as public health and in the interface with competition policy. If it was true that a properly calibrated IP system was likely to play a positive and key role in promoting the technological and social development of a country, then a dysfunctional system might prove an impediment to innovation.

420. The granting of frivolous patents might do enormous harm to R&D activities and disrupt the necessary flows across innovation chains. This is especially true at present, when most meaningful inventions are the combined result of the integration of a series of small innovations increasing efficiency or productivity only incrementally. Patent protection granted to a series of incremental innovations could in fact create uncertainty and thereby prevent breakthrough inventions from being made. In recent years, the international community has witnessed innovative companies, especially IT companies, invest great amount of their resources in patent litigation. These episodes were referred to as "patent wars" by the press. In yesterday's side event, we had the opportunity to hear from the representative of an innovative NGO regarding its activities in developing countries. This organization stated that even at the level of an NGO, it is important to apply for patents as a defensive mechanism. Here we see that not only companies, but also NGOs, identify today´s IP system not as an innovation incentive but as a source of litigation.

421. I would like to conclude with two questions: How cost-effective is a system that proliferates frivolous patents? How cost effective is a system that proliferates litigation?

12.12 India

422. We are again puzzled by the inclusion of an agenda item on "IP and Innovation: Cost Effective Innovation" at the behest of mainly developed countries. As in the past, we oppose the repeated inclusion of an agenda item on innovation as it is not related to any particular aspect of the TRIPS Agreement. Since the TRIPS Council was set up to oversee the implementation of the TRIPS Agreement, we would like to know from the proponents as to how this item fits into the overall terms of reference of the TRIPS Council.

423. We have carefully listened to the statements of the proponents alongside with the list of examples of cost-effective innovations in each country. But we do not understand how IP can become a catalyst or a prime mover for innovation. Are other factors such as human resources, the education system, finance, infrastructure, governance, the judicial system etc. not equally important in creating an enabling environment for innovation? Do the proponents believe that with the focus on IP and its enforcement, developing countries can become the powerhouse of innovation? We would therefore invite the proponents to spell out the clear intention behind the agenda item. Because of the repeated demand that an item on innovation be included on the agenda, we get the impression that the co-sponsors would like to convert the TRIPS Council into a talk shop on innovation success stories.

424. During the TRIPS Council meeting in November 2012, my delegation had noted that the word "innovation" appears only once in the TRIPS Agreement, i.e. in its Article 7. We had further stated that IP was not just for the sake of innovation itself, but "to the mutual advantage of producers and users of knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations". Thus the objective of the TRIPS Agreement is not solely to protect the commercial interests, but is a tool for the society to achieve socio economic welfare. In this regard, we would have definitely appreciated an agenda item on the "Dissemination of technology to LDCs under Article 66.2 of the TRIPS Agreement" along with "Cost-effective innovation" since only the resource-constrained countries can understand what cost-effective innovation means. The LDCs could innovate only when they develop a sound and viable technological base. Thus the decision of the TRIPS Council to exempt the LDCs from the obligations of the TRIPS Agreement for a period of eight years is an important step towards promoting cost-effective innovation in LDCs.

425. The IP system, meant to protect innovations, is a resource-intensive system. SMEs in developing countries that develop cost-effective innovations cannot bear the cost of protecting their IP in every country. Further, if there is an infringement of its IP, we do not believe that these enterprises would have the capacity to litigate. In fact, we have ourselves experienced how difficult it was in revoking the patent on turmeric issued by the USPTO. Since only the big companies, mostly found in developed countries, have the capacity to protect IP and litigate if necessary, we believe that the IP system protects their interests and not those of the small companies mostly found in developing countries. The success of frugal innovations in developing countries is not a result of the IP system but is due to the capacity of these innovators to cut costs to meet the aspirations of the people at the bottom of the pyramid.

426. We have also seen some references being made by the proponents about cost-effective innovations in India. India would like to be at the forefront of innovation and has therefore declared the decade of 2010 as the decade of innovation. The National Innovation Council was set up to create a cross-cutting system that will provide mutually reinforcing policies, recommendations and methodologies to implement and boost innovation performance in India. The idea is to create an indigenous model of development suited to Indian needs and development. India does not object to the concept of innovation but to the attempts being made by the proponents to link it with IP.

427. The TRIPS Agreement provides enough flexibility in devising a national IP policy and can promote cost effective innovation. Thus, the patent threshold should not be so low that minor innovations are patented and create monopolies. Any attempt to disturb the delicate balance would adversely affect the cost-effective innovation so critical for the developing countries.

12.13 Ecuador

428. We support the arguments made by Brazil and India. There are two important issues that we would like to underscore. Firstly, the IP system is not the only or even the main reason for innovation. It is an element. Secondly, the IP system does not necessarily guarantee technology transfer because it provides for the possibility of export monopolies, which may facilitate technology and knowledge transfer, but in practice does not seem to do that.

429. Many small innovations that have been mentioned in the global disputes at present between transnational companies are extremely important. That has resulted in a whole range of cases that many of us are aware of. As India has said, I wonder to what extent SMEs in developing countries can cover the costs of litigation and of enforcing their IPRs.