

Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore

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IDENTIFYING EXAMPLES OF TRADITIONAL KNOWLEDGE TO STIMULATE A DISCUSSION OF WHAT SHOULD BE PROTECTABLE SUBJECT MATTER AND WHAT IS NOT INTENDED TO BE PROTECTED

Document submitted by the Delegation of the United States of America

1. On November 30, 2016, the International Bureau of the World Intellectual Property Organization (WIPO) received a request from the Delegation of the United States of America to submit a document entitled “Identifying Examples of Traditional Knowledge to Stimulate a Discussion of What Should be Protectable Subject Matter and What is Not Intended to be Protected” to the Thirty-Second Session of the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC), as a working document.
2. Pursuant to the request above, the Annex to this document contains the submission referred to, as received.

3. *The Committee is invited to take note of this document.*

[Annex follows]

IDENTIFYING EXAMPLES OF TRADITIONAL KNOWLEDGE TO STIMULATE A DISCUSSION OF WHAT SHOULD BE PROTECTABLE SUBJECT MATTER AND WHAT IS NOT INTENDED TO BE PROTECTED

I. INTRODUCTION

The objective of the WIPO IGC is to reach an agreement on an international legal instrument(s) relating to intellectual property that will ensure the balanced and effective protection of genetic resources, traditional knowledge (TK) and traditional cultural expressions (TCEs). In advancing its work, the Committee is expected to use an “evidence-based approach, including studies and examples of national experiences, including domestic legislation and examples of protectable subject matter and subject matter that is not intended to be protected.”

The WIPO IGC mandate requires Members to place a primary focus on reaching a common understanding on core issues, including what TK is entitled to protection at an international level and what TK is not meant to be protected.

This paper is intended to contribute toward a common understanding by identifying some of the many well-known products and activities based on traditional knowledge in order to facilitate a discussion on which TK should be protected and what should be available for all to make and use without restriction. Below are a few examples, which may be considered in the context of a draft international legal instrument and alternatives.

II. WELL-KNOWN PRODUCTS AND ACTIVITIES ROOTED IN TRADITIONAL KNOWLEDGE

Syringes: Syringes are an important medical instrument that allows fluid to be injected or withdrawn from the human body. Although Alexander Wood of Scotland was credited for inventing the syringe in 1853, it was in fact native North Americans who long before that used a primitive syringe composed of a bird bone to inject medicine into the skin as well as to clean or irrigate wounds.¹ One end of the bird bone would be sharpened and serve as a needle, while the other end would be connected to a small animal bladder containing the medicine.² Native South Americans would also use a similar type of syringe, but would employ a rubber bulb instead of an animal bladder to hold the medication.³ This was known as the first rubber-bulb syringe.

Popcorn: Although mostly consumed in the U.S., popcorn is famous throughout the world. In 2015 alone, approximately 1.2 billion pounds of popcorn were sold worldwide.⁴ Although popcorn’s exact origins are not certain, it has existed for thousands of years. Popcorn dating from approximately 3500 BCE was discovered by archaeologists in the Bat Cave in New Mexico in 1948.⁵ Remnants of popcorn were also found in ancient Peruvian tombs used as early as 6700 years ago.⁶ Lastly, accounts from French explorers during the 17th century in North America indicate they witnessed Iroquois tribes (a native North American indigenous group) placing corn kernels inside vessels that contained heated sand.⁷ They noticed that when

¹ Encyclopedia of American Indian Contributions to the World: 15,000 Years of Inventions and Innovations 257 (Emory Dean Keoke & Kay Marie Porterfield eds., Facts on File, Inc., 2003).

² Id.

³ Id.

⁴ <http://www.popcorn.org/Facts-Fun/Industry-Facts>.

⁵ <http://www.popcorn.org/Facts-Fun/History-of-Popcorn/Early-History-of-Popcorn>.

⁶ <http://www.history.com/news/popcorn-was-popular-in-ancient-peru-discovery-suggests>.

⁷ <https://www.nal.usda.gov/exhibits/speccoll/exhibits/show/popcorn/europeans-meet-popcorn>.

enough heat was applied to the kernels, the kernels would pop and form what we now call popcorn.⁸

Football: Football (or soccer in the U.S.) is the world's most popular sport. Played by over 240 million people in over 200 countries today, football has existed since the second and third centuries BC when the ancient Chinese first used it as a military training exercise.⁹ Known to the Chinese during the Han Dynasty as Tsu' Chu, the sport was played with a leather ball stuffed with feathers and hair.¹⁰ Chinese soldiers would kick the ball through a 30-40 cm opening in a net affixed between two bamboo canes.¹¹ In one form of the exercise, players only used their feet, chest, back and shoulders while use of the hands was illegal.¹² Another version of football, known as Kemari, was played by the Japanese 500-600 years later.¹³ In Kemari, players passed a ball around a circle without letting it touch the ground.¹⁴ In the U.S., native North Americans during the 17th century played a version of football known as *Pasuckuakohowog*, which means "they gather to play ball with the foot."¹⁵

Anesthetics: Anesthetics are widely-used drugs used to prevent or reduce pain during surgery. Today, surgeons employ local or general anesthesia. Local anesthetics temporarily block pain in a particular location on the body. General anesthetics, on the other hand, render the patient unconsciousness while undergoing surgery. Although credit is given to Dr. William T.G. Morton for performing the first surgery using modern anesthesia in 1846 using ether,¹⁶ evidence exists that the ancient Incas around 1000 AD used the leaves of a coca plant (*Erythroxylon coca*) as an anesthetic while performing a cranial surgery known as trepanation.¹⁷ The coca leaves would be chewed and then placed on the operative area as a local anesthetic.¹⁸ The Incas would use maize alcohol and tobacco as an alternative anesthetic.¹⁹

Surfing: Surfing is a well-known water sport that entails "surfers" standing on boards and riding waves ranging from a few feet to over 50 feet in height. The earliest evidence of surfing dates back three thousand years ago when fishermen in Western Polynesia would sit on a plank and ride waves to the shore as an efficient way to bring their catch from the sea.²⁰ Others argue that surfing goes back even further - to 2000 BC - when the ancient Polynesians and Pacific Islanders used it as a form of recreation.²¹ As these communities migrated east towards Hawaii by 400 AD, they likely took the knowledge of basic surfing with them.²² By the 1800s, Hawaiians perfected the art of surfing and left a lasting impression on European explorers and others who marveled at their "wave riding" or "surf riding."²³

Chocolate: Chocolate is one of the world's most widely-consumed products and has been popular for centuries. In 2014 alone, world chocolate revenue reached approximately \$117 U.S. billion.²⁴ Chocolate was first cultivated for use in a beverage discovered by the ancient Mayans

⁸ [Id.](#)

⁹ <http://www.fifa.com/about-fifa/who-we-are/the-game/>.

¹⁰ [Id.](#)

¹¹ [Id.](#)

¹² [Id.](#)

¹³ [Id.](#)

¹⁴ [Id.](#)

¹⁵ <http://historyoffootballreally.blogspot.com/2009/09/american-indians-and-pasuckuakohowog.html>.

¹⁶ Basics of Anesthesia 5 (Ronald D. Miller & Manuel C. Pardo eds., 2011).

¹⁷ Anesthetic Toxicity 107 (Susan A. Rice & Kevin Fish eds., Raven Press 1994).

¹⁸ [Id.](#)

¹⁹ <http://news.nationalgeographic.com/news/2008/05/080512-inca-skulls.html>.

²⁰ <http://iml.jou.ufl.edu/projects/spring04/britton/history.htm>.

²¹ Ben Finney & James D. Houston, Surfing – A History of the Ancient Hawaiian Sport, 21 (Pomegranate Artbooks 1996).

²² [Id.](#)

²³ [Id.](#)

²⁴ A Taste of the Future, The trends that could Transform the Chocolate Industry, 3 (June 2014 KPMG International).

and Aztecs, who developed a way to ferment, roast and grind cacao beans found in local rainforests into a paste.²⁵ The cacao paste was then mixed with water, vanilla, honey, chili peppers and other spices.²⁶ The resulting concoction, called *chocotal*, was a chocolatey beverage that the ancient Mayans and Aztecs found to improve mood, alertness, and romance.²⁷ The Aztec Emperor Montezuma was rumored to drink 50 cups of *chocotal* a day. It was not until 1828 that solid chocolate was created from cocoa butter.²⁸

Antibiotics: Antibiotics are drugs that prevent or limit bacterial infections. They are commonly used to treat illnesses such as the whooping cough, strep throat and ear, sinus, and urinary tract infections.²⁹ Similar to how modern antibiotics work, pre-Columbian Aztecs discovered that the sap of the maguey plant (*Agave americana*) prevented infection and was used to treat wounds.³⁰ Sometimes Aztec doctors would add salt to the maguey sap to increase effectiveness.³¹ Another pre-Columbian indigenous group called the Makah in modern Washington State utilized yarrow, which is from the *Achillea millefolium* plant, as an antibiotic.³²

Tea: Tea is among the most popular drinks in the world. Some analysts value the worldwide tea market at approximately \$40 billion (U.S.).³³ The exact origin of tea is unknown, but some historians place its beginnings in ancient China when Emperor Shen Nung discovered it in 2737 BC when tea leaves accidentally fell in his cup of boiling water. After drinking the resulting mixture, the Emperor noticed its revitalizing qualities.³⁴ As China developed into a tea culture, its medicinal effects and refreshing qualities became widely-known.³⁵ Some evidence also exists that tea could have originated in ancient Tibet or Northern India.³⁶

Coffee: Coffee is perhaps the world's most widely-consumed beverage. Statistics show that the U.S. citizens consume an average of 3.1 cups per day.³⁷ Although today it is produced in over 50 countries, coffee has existed for thousands of years. Some attribute its origin to a goat herder in Ethiopia named Kaldi, who noticed his goats extremely energetic one day after eating the red fruit of a coffee plant.³⁸ Kaldi became curious and ate some of the fruit himself, noticing it too made him feel more alert.³⁹ The legend goes that he shared the fruit with a monk who was having difficulty staying awake during prayers.⁴⁰

²⁵ <http://www.history.com/news/hungry-history/the-sweet-history-of-chocolate>.

²⁶ Id.

²⁷ Id.

²⁸ Christopher Klein, The Sweet History of Chocolate, <http://www.history.com/news/hungry-history/the-sweet-history-of-chocolate>.

²⁹ <http://www.cdc.gov/getsmart/community/about/should-know.html>.

³⁰ Encyclopedia of American Indian Contributions to the World: 15,000 Years of Inventions and Innovations, *supra* note 1, at 15.

³¹ Id.

³² Id.

³³ <http://fortune.com/2015/06/05/davids-tea-ipo/>.

³⁴ <http://www.mightyleaf.com/history-of-tea/>.

³⁵ http://www.china.org.cn/learning_chinese/Chinese_tea/2011-07/15/content_22999489.htm.

³⁶ Id.

³⁷ <https://www.hsph.harvard.edu/news/multimedia-article/facts/>.

³⁸ Stories Behind Everyday Things 76 (Jane Polley ed., Reader's Digest, 1980).

³⁹ Id.

⁴⁰ Id.

Chewing Gum: Chewing gum is another product whose origins can be traced back to indigenous peoples. Pre-Columbian Mayans used to chew on natural gum known as chicle, a substance extracted from the sapodilla tree,⁴¹ which is found in southern Mexico and Central America.⁴² This was done to satisfy hunger and thirst.⁴³ These Mayans discovered that when the bark of the sapodilla tree is sliced off or infested with insects, a white milky liquid emerges as a protective layer over the affected area. The resulting substance is chicle latex, the original basis for chewing gum.⁴⁴ The Mayans called this chicle *tzictli*, which they thought had a nice texture and sweetness to it.⁴⁵ Chicle was not introduced into the U.S. until it was brought over by Mexican General Antonio Lopez de Santa Anna in 1855 after he was exiled by Mexico.⁴⁶ In the late 1800s and early 1900s, chicle formed the basis of the chewing gum industry in America.⁴⁷

Rubber: Rubber is a vital component of many products, including shoes, adhesives, belts, tires, contact lenses, balls, balloons and toys. Although Charles Goodyear is credited with the discovery of vulcanized rubber, rubber has been known for centuries. When Columbus discovered Hispaniola in 1492, he observed the natives playing with rubber balls.⁴⁸ Moreover, in 1615, Friar Juan de Torquemada of the Franciscan order in Mexico spotted indigenous people using latex which they had obtained from rubber trees.⁴⁹ These indigenous groups discovered that rubber can be created from the white substance that appears when the stalk of dandelions or milkweed plants is broken.⁵⁰ This white fluid is latex, which is the basis of natural rubber.

Gorgonzola: Gorgonzola (or Stracchino di Gorgonzola in Italy) is a world-famous cheese made primarily in the Piedmont and Lombardy regions of Italy.⁵¹ It is known for its soft and flaky texture as well as its distinct color.⁵² There are several legends of its discovery. One involves a young 15th century cheesemaker in Italy who in the middle of his work got distracted and accidentally left moist curd overnight in a dank basement.⁵³ In the morning, he attempted to correct his mistake and mixed the previous night's curd with the morning's new batch. Several weeks later, he noticed that the cheese mixture he had concocted was partially green. Out of curiosity, he tasted the cheese and found it delightful. He then placed sticks inside the cheese to let it air out, allowing it to have a unique look and taste.⁵⁴ Another story of how Gorgonzola was created was during Roman times when tired cows migrated from the Alps to the lush pastures of the Po River, near the city of Gorgonzola, Italy.⁵⁵ Legend has it that so many of these cows arrived from the mountains that the townspeople created gorgonzola in order to conserve all the milk.⁵⁶

⁴¹ <http://www.history.com/news/hungry-history/chew-on-this-the-history-of-gum>.

⁴² Jennifer P. Matthews, *Chicle: The Chewing Gum of the Americas, from the Ancient Maya to William Wrigley*, 5 (University of Arizona Press, 2009).

⁴³ *Id.* at 6.

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Encyclopedia of American Contributions to the World: 15,000 Years of Inventions and Innovations*, *supra* note 30, at 55.

⁴⁷ *Id.*

⁴⁸ *Id.* at 285.

⁴⁹ *Id.*

⁵⁰ *Id.* at 284.

⁵¹ <http://www.academiabarilla.com/the-italian-food-academy/traditional-cheese/gorgonzola.aspx>.

⁵² <http://www.cheese.com/gorgonzola/>.

⁵³ *World Cheese Book 108* (Juliet Harbutt ed., Dorling Kindersley Limited, 2009).

⁵⁴ <http://www.academiabarilla.com/the-italian-food-academy/traditional-cheese/gorgonzola.aspx>.

⁵⁵ *Id.*

⁵⁶ *Id.*

III. CONCLUSION

This paper is intended to stimulate a discussion about which TK subject matter should be subject to protection and which should be excluded. We invite other members to comment on the examples contained in this paper and to identify other examples for discussion. Our discussion of these examples will help us to fulfill our mandate to reach a common understanding on which TK subject matter is entitled to protection at the international level. It will also assist us in addressing a fundamental, outstanding issue in our negotiations.

[End of Annex and of document]