# 1

#### Interpretation: The aff can’t specify a type of medicine or subset of medicines. To clarify, [defending only indigenous medicines] is not topical.

#### The upward entailment test and adverb test determine the genericity of a bare plural

Leslie and Lerner 16 [Sarah-Jane Leslie, Ph.D., Princeton, 2007. Dean of the Graduate School and Class of 1943 Professor of Philosophy. Served as the vice dean for faculty development in the Office of the Dean of the Faculty, director of the Program in Linguistics, and founding director of the Program in Cognitive Science at Princeton University. Adam Lerner, PhD Philosophy, Postgraduate Research Associate, Princeton 2018. From 2018, Assistant Professor/Faculty Fellow in the Center for Bioethics at New York University. Member of the [Princeton Social Neuroscience Lab](http://psnlab.princeton.edu/).] “Generic Generalizations.” Stanford Encyclopedia of Philosophy. April 24, 2016. <https://plato.stanford.edu/entries/generics/> TG

1. Generics and Logical Form

In English, generics can be expressed using a variety of syntactic forms: bare plurals (e.g., “tigers are striped”), indefinite singulars (e.g., “a tiger is striped”), and definite singulars (“the tiger is striped”). However, none of these syntactic forms is dedicated to expressing generic claims; each can also be used to express existential and/or specific claims. Further, some generics express what appear to be generalizations over individuals (e.g., “tigers are striped”), while others appear to predicate properties directly of the kind (e.g., “dodos are extinct”). These facts and others give rise to a number of questions concerning the logical forms of generic statements.

1.1 Isolating the Generic Interpretation

Consider the following pairs of sentences:

(1)a.Tigers are striped.

b.Tigers are on the front lawn.

(2)a.A tiger is striped.

b.A tiger is on the front lawn.

(3)a.The tiger is striped.

b.The tiger is on the front lawn.

The sentence pairs above are prima facie syntactically parallel—both are subject-predicate sentences whose subjects consist of the same common noun coupled with the same, or no, article. However, the interpretation of first sentence of each pair is intuitively quite different from the interpretation of the second sentence in the pair. In the second sentences, we are talking about some particular tigers: a group of tigers in ([1b](https://plato.stanford.edu/entries/generics/#ex1b)), some individual tiger in ([2b](https://plato.stanford.edu/entries/generics/#ex2b)), and some unique salient or familiar tiger in ([3b](https://plato.stanford.edu/entries/generics/#ex3b))—a beloved pet, perhaps. In the first sentences, however, we are saying something general. There is/are no particular tiger or tigers that we are talking about.

The second sentences of the pairs receive what is called an existential interpretation. The hallmark of the existential interpretation of a sentence containing a bare plural or an indefinite singular is that it may be paraphrased with “some” with little or no change in meaning; hence the terminology “existential reading”. The application of the term “existential interpretation” is perhaps less appropriate when applied to the definite singular, but it is intended there to cover interpretation of the definite singular as referring to a unique contextually salient/familiar particular individual, not to a kind.

There are some tests that are helpful in distinguishing these two readings. For example, the existential interpretation is upward entailing, meaning that the statement will always remain true if we replace the subject term with a more inclusive term. Consider our examples above. In ([1b](https://plato.stanford.edu/entries/generics/#ex1b)), we can replace “tiger” with “animal” salva veritate, but in ([1a](https://plato.stanford.edu/entries/generics/#ex1a)) we cannot. If “tigers are on the lawn” is true, then “animals are on the lawn” must be true. However, “tigers are striped” is true, yet “animals are striped” is false. ([1a](https://plato.stanford.edu/entries/generics/#ex1a)) does not entail that animals are striped, but ([1b](https://plato.stanford.edu/entries/generics/#ex1b)) entails that animals are on the front lawn (Lawler 1973; Laca 1990; Krifka et al. 1995).

Another test concerns whether we can insert an adverb of quantification with minimal change of meaning (Krifka et al. 1995). For example, inserting “usually” in the sentences in ([1a](https://plato.stanford.edu/entries/generics/#ex1a)) (e.g., “tigers are usually striped”) produces only a small change in meaning, while inserting “usually” in ([1b](https://plato.stanford.edu/entries/generics/#ex1b)) dramatically alters the meaning of the sentence (e.g., “tigers are usually on the front lawn”). (For generics such as “mosquitoes carry malaria”, the adverb “sometimes” is perhaps better used than “usually” to mark off the generic reading.)

#### It applies to “medicines” – 1] upward entailment test – “nations ought to reduce IP for medicines” doesn’t entail that nations ought to reduce IP for all products because the arguments for tech patents are completely separate, 2] adverb test – adding “usually” to the res doesn’t substantially change its meaning because any reduction big or small is still a reduction

#### Precision outweighs pragmatics A) All pragmatic arguments concede the authority of semantics in order to convey pragmatic messages B) Key to predictability- the topic is the only thing that we have beforehand. Explodes neg prep burden and outweighs every other pragmatic consideration C) Jurisdiction – it’s not in the judge’s jurisdiction to vote for an illegitimate aff. Independent voter -- even if they prove pragmatics they lose for not defending the resolution.

#### Violation:

#### Standards:

1. Limits – Any life-saving drug can be an independent aff including things like insulin, penicillin, ether, morphine, asprin plus vaccines like covid, smallpox, polio and independent medicines. There’s no universal DA because smaller medicines don’t require innovation, they just need to be distributed plus it kills our ability to read things like biodefense DA, vaccine imperialism, and more. That explodes neg prep burdens and kills engagement – even if generics solve, it’s a horrible model that leads to the same stale debates. Potential abuse doesn’tjustify in round abuse and 1ar theory checks pics.

FE CI RVI DTD

# 2

#### Strong current IP guarantees causes massive Pharma innovation.

Stevens and Ezell 20 Philip Stevens and Stephen Ezell 2-3-2020 "Delinkage Debunked: Why Replacing Patents With Prizes for Drug Development Won’t Work" <https://itif.org/publications/2020/02/03/delinkage-debunked-why-replacing-patents-prizes-drug-development-wont-work> (Philip founded Geneva Network in 2015. His main research interests are the intersection of intellectual property, trade, and health policy. Formerly he was an official at the World Intellectual Property Organization (WIPO) in Geneva, where he worked in its Global Challenges Division on a range of IP and health issues. Prior to his time with WIPO, Philip worked as director of policy for International Policy Network, a UK-based think tank, as well as holding research positions with the Adam Smith Institute and Reform, both in London. He has also worked as a political risk consultant and a management consultant. He is a regular columnist in a wide range of international newspapers and has published a number of academic studies. He holds degrees from the London School of Economics and Durham University (UK).)//Elmer

The **Current System** Has **Produced a Tremendous Amount of Life-Sciences Innovation** The frontier for biomedical innovation is seemingly limitless, and the challenges remain numerous—whether it comes to diseases that afflict millions, such as cancer or malaria, or the estimated 7,000 rare diseases that afflict fewer than 200,000 patients.24 And while certainly citizens in developed and developing nations confront differing health challenges, those challenges are increasingly converging. For instance, as of this year, analysts expect that **noncommunicable** diseases such as cardiovascular disease and diabetes will account for 70 percent of natural fatalities **in developing countries**.25 Citizens of low- and middle-income countries bear 80 percent of the world’s death burden from cardiovascular disease.26 Forty-six percent of Africans over 25 suffer from hypertension, more than anywhere else in the world. Similarly, 85 percent of the disease burden of cervical cancer is borne by individuals living in low- and middle-income countries.27 To develop treatments or cures for these conditions, novel biomedical innovation **will be needed from everywhere**. Yet tremendous progress has been made in recent decades. To tackle these challenges, the global pharmaceutical industry invested over **$1.36 trillion in R&D** in the decade from 2007 to 2016—and it’s expected that annual R&D investment by the global pharmaceutical industry will reach $181 billion by 2022.28 In no small part due to that investment, **943 new active substances have been introduced** globally over the prior 25 years.29 The U.S. Food and Drug Administration (FDA) has approved more than **500 new medicines since 2000** alone. And these medicines are getting to more individuals: Global medicine use **in 2020 will reach 4.5 trillion doses**, up 24 percent from 2015.30 Moreover, there are an estimated 7,000 new medicines under development globally (about half of them in the United States), with 74 percent being potentially first in class, meaning they use a new and unique mechanism of action for treating a medical condition.31 In the United States, over 85 percent of all drugs sold are generics (only 10 percent of U.S. prescriptions are filled by brand-name drugs).32 And while some assert that biotechnology companies focus too often on “me-too” drugs that compete with other treatments already on the market, the reality is many drugs currently under development are meant to tackle some of the **world’s most intractable diseases**, **including cancer and Alzheimer’s**.33 Moreover, such arguments miss that many of the drugs developed in recent years have in fact been first of their kind. For instance, in 2014, the FDA approved **41 new medicines** (at that point, the most since 1996) many of which were first-in-class medicines.34 In that year, 28 of the 41 drugs approved were considered biologic or specialty agents, and 41 percent of medicines approved were intended to treat rare diseases.35 Yet even when a new drug isn’t first of its kind, it can still produce benefits for patients, both through **enhanced clinical efficacy** (for instance, taking the treatment as a pill rather than an injection, with a superior dosing regimen, **or better treatment** for some individuals who don’t respond well to the original drug) and by generating competition that exerts downward price pressures. For example, a patient needing a cholesterol drug has a host of statins from which to choose, which is important because some statins produce harmful side effects for some patients. Similarly, patients with osteoporosis can choose from Actonel, Boniva, or Fosomax. Or take for example Hepatitis C, which until recently was an incurable disease eventually requiring a liver transplant for many patients. In 2013, a revolutionary new treatment called Solvadi was released that boosted cure rates to 90 percent. This was followed in 2014 by an improved treatment called Harvoni, which cures the Hepatitis C variant left untouched by Solvadi. Since then, an astonishing six new treatments for the disease have received FDA approval, opening up a wide range of treatment options that take into account patients’ liver and kidney status, co-infections, potential drug interactions, previous treatment failures, and the genotype of HCV virus.36 “If you have to have Hepatitis C, now is the time to have it,” as Douglas Dieterich, a liver specialist at the Icahn School of Medicine at Mount Sinai Hospital in New York, told the Financial Times. “We have these marvellous drugs we can treat you with right now, without side effects,” he added. “And this time next year, we’ll have another round of drugs available.”37 Moreover, the financial potential of this new product category has led to multiple competing products entering the market in quick succession, in turn placing downward pressure on prices.38 As Geoffrey Dusheiko and Charles Gore write in The Lancet, “The market has done its work for HCV treatments: after competing antiviral regimens entered the market, competition and innovative price negotiations have driven costs down from the initially high list prices in developed countries.”39 As noted previously, opponents of the current market- and IP-based system contend patents enable their holders to exploit a (temporary) market monopoly by inflating prices many multiples beyond the marginal cost of production. But rather than a conventional neoclassical analysis, an analysis based on “innovation economics” finds it is exactly this “distortion” that is required for innovation to progress. As William Baumol has pointed out, “Prices above marginal costs and price discrimination become the norm rather than the exception because … without such deviations from behaviour in the perfectly competitive model, innovation outlays and other unavoidable and repeated sunk outlays cannot be recouped.”40 Or, as the U.S. Congressional Office of Technology Assessment found, “Pharmaceutical R&D is a risky investment; therefore, high financial returns are necessary **to induce companies to invest** in researching new chemical entities.”41 This is also why, in 2018, the U.S. Congressional Budget Office estimated that because of high failure rates, biopharmaceutical **companies would need to earn a 61.8 percent rate of return on their successful new drug R&D projects in order to match a 4.8 percent after-tax rate of return on their investment**s.42 Indeed, **it’s the ability to recoup fixed costs, not just marginal** costs, through mechanisms such as patent protection that lies at the heart of all innovation-based industries and indeed all innovation and related economic progress. If companies could not find a way to pay for their R&D costs, and could only charge for the costs of producing the compound, **there would be no new drugs developed**, just as there would be no new products developed in any industry. Innovating in the life sciences remains expensive, risky, difficult, and uncertain. Just 1 in 5,000 drug candidates make it all the way from discovery to market.43 A 2018 study by the Deloitte Center for Health Solutions, “Unlocking R&D productivity: Measuring the return from pharmaceutical innovation 2018,” found that “the average cost to develop an asset [an innovative life-sciences drug] including the cost of failure, has increased in six out of eight years,” and that the average cost to create a new drug has risen to $2.8 billion.44 Related research has found the development of new drugs requires years of painstaking, risky, and expensive research that, for a new pharmaceutical compound, takes an average of 11.5 to 15 years of research, development, and clinical trials, at a cost of $1.7 billion to $**3.2 billion**.45 IP rights—including patents, copyrights, and data exclusivity protections—give innovators, whether in the life sciences or other sectors, the **confidence** to undertake the risky and expensive process of innovation, secure in the knowledge they’ll be able to capture a share of the gains from their efforts. And these gains are often only a small fraction of the true value created. For instance, Yale University economist William Nordhaus estimated inventors capture just 4 percent of the total social gains from their innovations; the rest spill over to other companies and society as a whole.46 Without adequate IP protection, private investors would never find it viable to fund advanced research because lower-cost copiers would be in a position to undercut the legitimate prices (and profits) of innovators, even while still generating substantial profits on their own.47 As the report “Wealth, Health and International Trade in the 21st Century” concludes, “Conferring robust intellectual property rights is, in the pharmaceutical and other technological-development contexts, **in the global public’s long-term interests.** Without adequate mechanisms for directly and indirectly securing the private and public funding of medicines and vaccines, research and development communities across the world will lose future benefits that would far outweigh the development costs involved.”48 Put simply, the current market- and IP-based life-sciences innovation system is producing life-changing biomedical innovation. As Jack Scannell, a senior fellow at Oxford University’s Center for the Advancement of Sustainable Medical Innovation has explained, “I would guess that one can buy today, at rock bottom generic prices, a set of small-molecule drugs that has greater medical utility than the entire set available to anyone, anywhere, at any price in 1995.” He continued, “Nearly all the generic medicine chest was created by firms who invested in R&D to win future profits that they tried pretty hard to maximize; short-term financial gain building a long-term common good.”49 For example, on September 14, 2017, the FDA approved Mvasi, the first biosimilar for Roche’s Avastin, a breakthrough anticancer drug when it came out in the mid-1990s for lung, cervical, and colorectal cancer.50 In other words, a medicine to treat forms of cancer that barely existed 20 years ago is now available as a generic drug today. It’s this dynamic that enables us to imagine a situation wherein drugs to treat diseases that aren’t available anywhere at any price today (for instance, treatments for Alzheimer’s or Parkinson’s) might be available as generics in 20 years. But that will only be the case if we preserve (and improve where possible) a life-sciences innovation system that is generally working. The current system does not require wholesale replacement by a prize-based system that—notwithstanding a meaningful success here or there—has produced nowhere near a similar level of novel biomedical innovation.

#### The most efficacious mainstream drugs come from Indigenous Knowledge – empirics are on our side.

King 91 Stephen King September 1991 "The Source of Our Cures: A new pharmaceutical company wants to provide reciprocal benefits and recognize the value of indigenous" <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/source-our-cures-new-pharmaceutical-company-wants-provide> //Elmer

**FOR 500 YEARS**, SINCE THE People of South America encountered Europeans on their soil, **the global pharmacopoeia** has been **enriched by a number of important plant-derived medicines discovered and utilized by indigenous people**. The skeletal **muscle relaxant d-tubocurarine** is derived from an Amazonian arrow poison better known as curare, Chonodendron tomentosum. The **antimalarial drug quinine**, obtained from the bark of the several species on Cinchona trees, was first called "Indian fever bark" by the Europeans until the name "Jesuit fever bark" became more popular. Quinidine, also produced from the bark of Cinchona species, is now used as an antiarrhythmic for people with cardiac problems. An important amoebocide and emetic drug **emetine**, obtained from the roots of Cephalis ipecacuana, was utilized by indigenous people in Brazil **to treat dysentery**. One of the world's most important local anesthetics, cocaine is derived from the leaves of Erthroxylum coca and is still used today as medicine by thousands of people in the Andean region of South America. **Pilocarpine**, a drug **used to treat glaucoma**, is derived from the plant Pilocarpups jaborandi and was utilized by indigenous people in Brazil as medicine. These are only a few examples of the mainstream drugs that have been developed based on the - acknowledged - traditional wisdom of indigenous people. Roughly **74 percent of the 121** **plant-derived compounds** currently **used in the global pharmacopoeia** h**ave been discovered through research based on** ethnobotanical information on the **use** of plants **by indigenous people**. It is well known that tropical forest ecosystems contain a tremendous diversity of plant species. Estimates cite a minimum of 250,000 flowering plant species worldwide, at least 90,000 of which are found in the neotropics. Fewer than one percent of these plants have been investigated even superficially for potential pharmacological activity. A surprisingly large proportion of this plant biodiversity is classified, utilized, and actively managed by indigenous and local people of tropical regions. Tropical forest people have a profound knowledge about the utility, of plants found in their environment - an observation confirmed by ethnobotanical and ethnopharmacological research in the past decade (see references). At the same time interdisciplinary research by anthropologists, ecologists, geographers, and tropical agrnomists has shown that indigenous people and rural inhabitants of the neotropics have been - and continue to - actively managing plant genetic resources in their environment (Balee and Posey 1989; Irvine 1987; Denevan and Padoch 1988; Posey 1985); plants used as medicine are often moved and maintained as cultivated or wild/cultivated medical resources.

#### **Chinese Tribal Medicine proves Compatibility and our Innovation Links.**

Erstling 8, Jay. "Using patent to protect traditional knowledge." Tex. Wesleyan L. Rev. 15 (2008): 295. https://open.mitchellhamline.edu/cgi/viewcontent.cgi?article=1187&context=facsch (Professor of Law, William Mitchell College of Law, St. Paul, Minnesota.)//Elmer

Advantages of Affirmative Protection Despite the above-mentioned limitations and challenges, **patents have a place in a TK protection system**. A **prime example is** the use of patents to protect **Traditional Chinese Medicine**. The practice of Traditional Chinese Medicine dates back to the beginning of Chinese history. At its most basic, it is "a systematic practice of distinguishing among various illness-causing imbalances of qi. [It] achieves health by restoring a patient's internal yin-yang equilibrium via herbal remedies and physical manipulation."1'69 Traditional Chinese Medicine is of **enormous importance** not only **to** the **Chinese**-**and** the **world's healthcare systems**, but also to the Chinese economy. 170 It is no surprise, therefore, that the Chinese Government has made it a policy to encourage the patenting of innovative Traditional Chinese Medicinal products. Although most developing countries tend to find disfavor with the **TRIPS** Agreement, the Agreement has proven to be a **boon to** the **protection of T**raditional **C**hinese **M**edicine. Prior to the adoption of Article 27.1 of the TRIPS Agreement, which required China to make patents available "for any inventions, whether products or processes, in all fields of technology . . . " the Chinese Patent Law171 did not protect Traditional Chinese Medicine. Since the Law's amendment, there has been a significant **uptake in patent activity**, particularly related to Traditional Chinese Medicine-based pharmaceuticals, and many supporters of Traditional Chinese Medicine believe that **this** activity has **served to incentivize investment in T**raditional **C**hinese **M**edicine, **increase** the **T**raditional **C**hinese **M**edicine **knowledge base**, and transform Traditional Chinese Medicine into a major global export asset. 172 Since 1992, when the Patent Law was amended, applicants have filed patent applications with the State Intellectual Property Office of China (SIPO) at a rate of 1,400 cases a year, 173 but they have not limited their activity to China alone; they have also filed applications in countries such as Germany, Japan, the United Kingdom, and the United States. Moreover, patent holders have begun to enforce the rights they have been granted. For example, in February 2007, China Business News reported that a Chinese patentee Traditional Chinese Medicine manufacturer won the first Traditional Chinese Medicine infringement case against another Chinese company. The patentee was awarded an injunction prohibiting the infringing company from selling the infringing products as well as damages. 174 The **promotion** of Traditional Chinese Medicine has **led to** the establishment of organizations such as the Shanghai Innovative Research Center of Traditional Chinese Medicine (**SIRC**), 75 **which** in turn has further encouraged patent protection for TK. Founded in 2000 with support from the Chinese Ministry of Science and Technology and the Shanghai Municipal Government, SIRC **seeks to modernize T**raditional **C**hinese **M**edicine **and innovate drug discovery** "**by integrating modern life science, chemistry, and information technology** with [Traditional Chinese Medicine]"1 76 -just the right formula to maximize patenting potential. 177 Although the patent system may not be suited to all types of TK, using patents to protect Traditional Chinese Medicine seems to have achieved some success in encouraging new innovation and invention. Communities working to advance other areas of innovative TK may do well to follow China's example.

#### R&D’s key to innovation – otherwise, future pandemics.

Marjanovic et al. ’20 (Sonja; Ph.D. at the University of Cambridge; May 2020; “How to Best Enable Pharma Innovation Beyond the COVID-19 Crisis”; RAND; <https://www.rand.org/pubs/perspectives/PEA407-1.html>; Accessed: 8-31-2021; AU)

As key actors in the healthcare innovation landscape, pharmaceutical and life sciences companies have been called on to **develop** medicines, vaccines and diagnostics for pressing public health challenges. The COVID-19 crisis is one such challenge, but there are many others. For example, MERS, SARS, Ebola, Zika and avian and swine flu are also **infectious diseases** that represent public health threats. Infectious agents such as anthrax, smallpox and tularemia could present threats in a **bioterrorism context**.1 The general threat to public health that is posed by **antimicrobial resistance** is also well-recognised as an area **in need of pharmaceutical innovation**. Innovating in response to these challenges does not always align well with pharmaceutical industry commercial models, shareholder expectations and competition within the industry. However, the expertise, networks and infrastructure that industry has within its reach, as well as public expectations and the moral imperative, make pharmaceutical companies and the wider life sciences sector an **indispensable partner** in the search for solutions that save lives. This perspective argues for the need to establish more sustainable and scalable ways of incentivising pharmaceutical innovation in response to infectious disease threats to public health. It considers both past and current examples of efforts to mobilise pharmaceutical innovation in high commercial risk areas, including in the context of current efforts to respond to the COVID-19 pandemic. In global pandemic crises like COVID-19, the urgency and scale of the crisis – as well as the spotlight placed on pharmaceutical companies – mean that contributing to the search for effective medicines, vaccines or diagnostics is **essential** for socially responsible companies in the sector. 2 It is therefore unsurprising that we are seeing industry-wide efforts unfold at unprecedented scale and pace. Whereas there is always scope for more activity, industry is currently **contributing in a variety of ways**. Examples include pharmaceutical companies donating existing compounds to assess their utility in the fight against COVID19; screening existing compound libraries in-house or with partners to see if they can be repurposed; accelerating trials for potentially effective medicine or vaccine candidates; and in some cases rapidly accelerating in-house research and development to discover new treatments or vaccine agents and develop diagnostics tests.3,4 Pharmaceutical companies are collaborating with each other in some of these efforts and participating in global R&D partnerships (such as the Innovative Medicines Initiative effort to accelerate the development of potential therapies for COVID-19) and supporting national efforts to expand diagnosis and testing capacity and ensure affordable and ready access to potential solutions.3,5,6 The **primary purpose** of such innovation is to benefit patients and wider population health. Although there are also reputational benefits from involvement that can be realised across the industry, there are likely to be relatively few companies that are ‘commercial’ winners. Those who might gain substantial revenues will be under pressure not to be seen as profiting from the pandemic. In the United Kingdom for example, GSK has stated that it does not expect to profit from its COVID-19 related activities and that any gains will be invested in supporting research and long-term pandemic preparedness, as well as in developing products that would be affordable in the world’s poorest countries.7 Similarly, in the United States AbbVie has waived intellectual property rights for an existing combination product that is being tested for therapeutic potential against COVID-19, which would support affordability and allow for a supply of generics.8,9 Johnson & Johnson has stated that its potential vaccine – which is expected to begin trials – will be available on a not-for-profit basis during the pandemic.10 Pharma is mobilising substantial efforts to rise to the COVID-19 challenge at hand. However, we need to consider **how** pharmaceutical **innovation** for **responding to emerging** infectious diseases can best be enabled beyond the current crisis. Many **public health threats (including** those associated with other infectious diseases, bioterrorism agents and antimicrobial resistance) **are urgently in need** of pharmaceutical innovation, even if their impacts are not as visible to society as COVID-19 is in the immediate term. The pharmaceutical industry has responded to previous public health emergencies associated with infectious disease in recent times – for example those associated with Ebola and Zika outbreaks.11 However, it has done so to a lesser scale than for COVID-19 and with contributions from fewer companies. Similarly, levels of activity in response to the threat of antimicrobial resistance are still low.12 There are **important policy questions** as to whether – and how – industry could engage with such public health threats to an even greater extent under **improved innovation conditions.**

#### Evolving superbugs trigger extinction.

Srivatsa ’17 (Kadiyali; specialist in pediatric intensive and critical care medicine in the UK. Invented the bacterial identification tool ‘MAYA’; 1-12-2017; "Superbug Pandemics and How to Prevent Them", American Interest; https://www.the-american-interest.com/2017/01/12/superbug-pandemics-and-how-to-prevent-them/, Accessed: 8-31-2021; AU)

It is by now no secret that the human species is locked in a race of its own making with “superbugs.” Indeed, if popular science fiction is a measure of awareness, the theme has pervaded English-language literature from Michael Crichton’s 1969 Andromeda Strain all the way to Emily St. John Mandel’s 2014 Station Eleven and beyond. By a combination of massive inadvertence and what can only be called stupidity, we must now invent new and effective antibiotics faster than deadly bacteria evolve—and regrettably, they are rapidly doing so with our help. I do not exclude the possibility that bad actors might deliberately engineer deadly superbugs.1 But even if that does not happen, humanity faces an existential threat largely of its own making in the absence of malign intentions. As threats go, this one is entirely predictable. The concept of a “black swan,” Nassim Nicholas Taleb’s term for low-probability but high-impact events, has become widely known in recent years. Taleb did not invent the concept; he only gave it a catchy name to help mainly business executives who know little of statistics or probability. Many have embraced the “black swan” label the way children embrace holiday gifts, which are often bobbles of little value, except to them. But the threat of inadvertent pandemics is not a “black swan” because its probability is not low. If one likes catchy labels, it better fits the term “gray rhino,” which, explains Michele Wucker, is a high-probability, high-impact event that people manage to ignore anyway for a raft of social-psychological reasons.2 A pandemic is a quintessential gray rhino, for it is no longer a matter of if but of when it will challenge us—and of how prepared we are to deal with it when it happens. We have certainly been warned. The curse we have created was understood as a possibility from the very outset, when seventy years ago Sir Alexander Fleming, the discoverer of penicillin, predicted antibiotic resistance. When interviewed for a 2015 article, “The Most Predictable Disaster in the History of the Human Race,” Bill Gates pointed out that one of the costliest disasters of the 20th century, worse even than World War I, was the Spanish Flu pandemic of 1918-19. As the author of the article, Ezra Klein, put it: “No one can say we weren’t warned. And warned. And warned. A pandemic disease is the most predictable catastrophe in the history of the human race, if only because it has happened to the human race so many, many times before.”3 Even with effective new medicines, if we can devise them, we must contain outbreaks of bacterial disease fast, lest they get out of control. In other words, we have a social-organizational challenge before us as well as a strictly medical one. That means getting sufficient amounts of medicine into the right hands and in the right places, but it also means educating people and enabling them to communicate with each other to prevent any outbreak from spreading widely. Responsible governments and cooperative organizations have options in that regard, but even individuals can contribute something. To that end, as a medical doctor I have created a computer app that promises to be useful in that regard—of which more in a moment. But first let us review the situation, for while it has become well known to many people, there is a general resistance to acknowledging the severity and imminence of the danger. What Are the Problems? Bacteria are among the oldest living things on the planet. They are masters of survival and can be found everywhere. Billions of them live on and in every one of us, many of them helping our bodies to run smoothly and stay healthy. Most bacteria that are not helpful to us are at least harmless, but some are not. They invade our cells, spread quickly, and cause havoc that we refer to generically as disease. Millions of people used to die every year as a result of bacterial infections, until we developed antibiotics. These wonder drugs revolutionized medicine, but one can have too much of a good thing. Doctors have used antibiotics recklessly, prescribing them for just about everything, and in the process helped to create strains of bacteria that are resistant to the medicines we have. We even give antibiotics to cattle that are not sick and use them to fatten chickens. Companies large and small still mindlessly market antimicrobial products for hands and home, claiming that they kill bacteria and viruses. They do more harm than good because the low concentrations of antimicrobials that these products contain tend to kill friendly bacteria (not viruses at all), and so clear the way for the mass multiplication of surviving unfriendly bacteria. Perhaps even worse, hospitals have deployed antimicrobial products on an industrial scale for a long time now, the result being a sharp rise in iatrogenic bacterial illnesses. Overuse of antibiotics and commercial products containing them has helped superbugs to evolve. We now increasingly face microorganisms that cannot be killed by antibiotics, antifungals, antivirals, or any other chemical weapon we throw at them. Pandemics are the major risk we run as a result, but it is not the only one. Overuse of antibiotics by doctors, homemakers, and hospital managers could mean that, in the not-too-distant future, something as simple as a minor cut could again become life-threatening if it becomes infected. Few non-medical professionals are aware that antibiotics are the foundation on which nearly all of modern medicine rests. Cancer therapy, organ transplants, surgeries minor and major, and even childbirth all rely on antibiotics to prevent infections. If infections become untreatable we stand to lose most of the medical advances we have made over the past fifty years.

#### Disease perpetuates colonialism – it disproportionately hurts Indigenous people.

Ostler 20 Jeffrey Ostler 4-29-2020 "Disease Has Never Been Just Disease for Native Americans" <https://www.theatlantic.com/ideas/archive/2020/04/disease-has-never-been-just-disease-native-americans/610852/> (Beekman Professor of Northwest and Pacific History at the University of Oregon.)//Elmer

As the death toll from COVID-19 mounts, **people of color are** clearly **at greater risk** than others. Among **the most vulnerable are Native** Americans. To understand **how dire** the **COVID**-19 situation **is** becoming for these communities, consider the situation unfolding for the **Navajo Nation**, a people with homelands in Arizona, New Mexico, and Utah. As of April 23, **1,360 infections and 52 deaths** had been reported among the Navajo Reservation’s 170,000 people, a **mortality rate of 30 per 100,000**. Only six states have a higher per capita toll. The spread of COVID-19 is **reminiscent of previous disease outbreaks that have ravaged Native American communities**. Many of those outbreaks resulted in catastrophic loss of life, far greater than even the worst-case scenarios for COVID-19. Even the 1918–19 flu pandemic, in which an estimated 650,000 Americans died (0.6 percent of the 1920 population of 106 million), pales in comparison to the losses Native Americans have suffered from disease. Until recently, histories of disease and Native Americans have emphasized “virgin-soil epidemics.” According to this theory, popularized in Jared Diamond’s Guns, Germs, and Steel, when Europeans arrived in the Western Hemisphere, they brought diseases (particularly measles and smallpox) that indigenous people had never experienced. Because they had no immunity to these diseases, so the theory goes, the resulting epidemics took the lives of 70 percent or more of the Native population throughout the Americas. New research, however, provides a much more complicated picture of disease in American Indian history. This research shows that virgin-soil epidemics were not as common as previously believed and shifts the focus to how **diseases repeatedly attacked Native communities** in the decades and **centuries after Europeans first arrived**. Post-contact diseases were **crippling** not so much because indigenous people lacked immunity, but **because** the **conditions** **created by** European and U.S. **colonialism made Native communities vulnerable**. The virgin-soil-epidemic hypothesis was valuable in countering earlier theories that attributed Native American population decline to racial inferiority, but its singular emphasis on biological difference implied that population collapses were nothing more than historical accidents. By stressing the importance of social conditions created by human decisions and actions, the new scholarship provides a far more disturbing picture. It also helps us understand the problems facing Native communities today as they battle the novel coronavirus. Virgin-soil epidemics undoubtedly occurred. In 1633, for example, a smallpox epidemic struck Native communities in New England, reducing the Mohegan and Pequot populations from a combined total of 16,000 to just 3,000. The epidemic spread to the Haudenosaunee in New York, but no farther west than that. Smallpox did not hit communities in the Ohio Valley and Great Lakes until 1756–57, a century or more after initial contact with Europeans. When it did, it was because Native fighters, recruited to fight for the French against the British during the Seven Years’ War, had contracted the virus in the east and infected their communities when they returned home. Lack of immunity mattered, but it was the disruption resulting from war that promoted smallpox’s spread. Smallpox did not arrive in the Southeast until 1696, a century and a half after the Hernando de Soto expedition. It was once thought that de Soto’s men carried smallpox, but this view reflected the flawed assumption that Europeans were always infected with smallpox and always contagious. De Soto’s expedition did cause disease to erupt in Native communities, but the reason was that the expedition’s violent warfare led to outbreaks of pathogens such as dysentery, which was already present in the Americas. When smallpox finally hit the Southeast, it spread rapidly from Virginia to East Texas across networks created by an English trade in Native captives for enslavement in their coastal and West Indies colonies. Raiding, capturing, and transporting human bodies created pathways for the smallpox virus. To make matters worse, those bodies were already weakened by war and its companions—malnutrition, exposure, and lack of palliative care. By the end of the 18th century, most Native communities in what would eventually become the United States had been exposed to smallpox. Nevertheless, as smallpox recurred in the 19th century, its impact correlated not with a lack of prior exposure, but with the presence of adverse social conditions. These same conditions would also make Native communities susceptible to a host of other diseases, including cholera, typhus, malaria, dysentery, tuberculosis, scrofula, and alcoholism. Native vulnerability had—and has—nothing to do with racial inferiority or, since those initial incidents, lack of immunity; rather, it has everything to do with concrete policies pursued by the United States government, its states, and its citizens. Consider the impact of the Indian Removal Act. Formally adopted in 1830, this policy called for the relocation of Native peoples east of the Mississippi River to “Indian Territory” (what would eventually become Oklahoma and Kansas). Most everyone has heard of the Cherokee Trail of Tears, but it is seldom considered a U.S.-caused health crisis. The expulsion of the Cherokee from their homeland in Georgia, North Carolina, and Tennessee had three phases. In the first, the U.S. Army forcibly evicted Cherokees from their homes and held them for several months in concentration camps with inadequate shelter, insufficient food, and no source of clean water. The camps became death traps. Of the 16,000 people held in them, about 2,000 died from dysentery, whooping cough, measles, and “fevers” (probably malaria). In the second phase, the journey west, an additional 1,500 perished, as people, already sick and further weakened by malnutrition, trauma, and exposure, succumbed to multiple pathogens. In the months after reaching Oklahoma—the third phase—an additional 500 died from similar causes. The death toll was 4,000, or 25 percent of the original 16,000 forced from their homes. Although the Cherokee Trail of Tears is the most well known, there were dozens of other such forced removals. Creeks, Seminoles, Chickasaws, Choctaws, Senecas, Wyandots, Potawatomis, Sauks and Mesquakies, Ojibwes, Ottawas, Miamis, Kickapoos, Poncas, Modocs, Kalapuyas, and Takelmas represent only a partial list of nations that suffered trails of tears. Not all experienced the same mortality as the Cherokee, but many did, and for some, the toll was even higher. The allied Sauks and Mesquakies were forced to move four times from their villages in western Illinois—once to central Iowa, once to western Iowa, once to Kansas, and finally to Oklahoma. In 1832, the time of the first expulsion, the Sauks and Mesquakies numbered 6,000. By 1869, when they were finally sent to Oklahoma, their population was only 900, a staggering loss of 85 percent. Year after year, unrelenting diseases, including an outbreak of smallpox in 1851, took many lives. Low fertility and infant mortality, the result of malnutrition, sickness, and trauma, hindered population replacement. The Sauk and Mesquakie catastrophe was not an accident. It was a direct and foreseeable consequence of decisions made by the United States and its citizens to dispossess Native people of desirable lands and shove them someplace else. Navajos (Dinés, as they refer to themselves in their language) were also evicted from their homelands. In the winter of 1863–64, the U.S. Army pursued scorched-earth tactics—destroying their peach trees and cornfields—to drive them to a barren reservation at Bosque Redondo, on the Pecos River in New Mexico. On the 250-mile forced march, known as the Long Walk, several hundred of the 8,000 to 9,000 Dinés died en route. Over the next four years, Dinés lost as many as 2,500 of their people to disease and starvation. In their darkest hour, though, Diné leaders successfully prevailed on government officials to release them from their prison and return home. But even though their population has grown over time, the legacies of the Long Walk remain. The Diné historian Jennifer Denetdale observes that “severe poverty, addiction, suicide and crime on reservations all have their roots in the Long Walk.” As cases of COVID-19 began to appear on the Navajo Reservation in late March, tribal President Jonathan Nez spoke to his people on Facebook. Summoning memories of the Long Walk, he “called on citizens to help one another,” reminding them “that’s when the best came out of many of our ancestors, helping each other out, carrying the load for the elders, carrying the children for our mothers.” “Now it’s our turn,” he said, “to think of our future, our children, our grandchildren.” Ongoing colonialism makes fighting COVID-19 a challenge. Although the Navajo are a sovereign nation with resources of their own, Dinés have a high incidence of conditions—diabetes, hypertension, and lung disease—that increase their susceptibility to becoming severely ill from the coronavirus. Lack of access to clean water makes hand-washing difficult. Many people cannot afford food, hand sanitizer, and other necessities. And there is an acute shortage of hospital beds and medical personnel. Many public officials, health experts, and journalists are drawing attention to the disproportionate impact of COVID-19 on communities of color. Even so, large segments of America are indifferent, if not outright hostile, to recognizing these disparities and the inequities underlying them. Native Americans are visible to the general public far more often as sports mascots than as actual communities. The Trump administration initially resisted providing any relief to tribal nations in the $2 trillion stimulus package passed in early April, and although the legislation ultimately appropriated $10 billion to tribal governments, the Treasury Department, tasked with distributing these funds, has failed to disburse them. According to New Mexico Senator Tom Udall, Treasury Department officials “don’t know how to interact in the appropriate way with tribes and they’re just not getting the job done.” Countering the invisibility of Native peoples, of course, means greater awareness of how COVID-19 is affecting them and enhanced efforts to provide resources to help them combat the current outbreak. It also means creating a deeper understanding of the history of American Indians and disease. Although the virgin-soil-epidemic hypothesis may have been well intentioned, its focus on the brief, if horrific, moment of initial contact consigns disease safely to the distant past and provides colonizers with an alibi. **Indigenous communities are fighting more than a virus**. They are **contending with the ongoing legacy of centuries of violence and dispossession.**

# 3

#### We affirm that the member nations of the World Trade Organization ought to:

#### Modify Intellectual Property Protection of Indigenous Knowledge through implementation of a Sui Generis Intellectual Property Regime that reflects consistent consultation with local communities and traditional communities.

#### Mandate widespread ratification, application, and the enforcement of the Swakokpmund Protocol ensuring that local communities and traditional communities are guaranteed continued use of Traditional Medical Knowledge in the traditional context without any legal implication and without licenses and subject to pre-determined sharing of benefits.

#### Implement an opt-in opt-out system where Indigenous Groups are given the right to refuse to relinquish control of Intellectual Property to non-Indigenous Intellectual Property Holders over Traditional Knowledge.

#### Mandate a disclosure of origin requirement as a pre-requisite of Intellectual Property Protection applications.

#### The Swakokpmund Protocol is an Intellectual Property Regime that solves exploitation and protects Traditional Knowledge and People while still allowing usage of Intellectual Property in Medical Innovation – Sua Generis emphasis of collective rights solves IPCB issues with IPRs.

Sinkala 17, Ruth M. "Protection of Traditional Medical Knowledge in the Patent System: Is There Room?." (2017). (Master Programme in Intellectual Property Law at University of Uppselett)//SidK

4.2 The Swakopmund Protocol The **Swakopmund Protocol is a regional legal framework** **designed to address the protection of TK** and folklore and provide a holistic view of African TK holders **for** purposes of **legal certainty and management of** their **inalienable** rights. Evidently, the Swakopmund Protocol is **a sui generis system** for the protection of TK. Therefore, it is **not constrained by** the limitations of patent law or other **mainstream IPR regimes**. It has been described as “**a historic step** **for** ARIPO member states and a significant milestone in the **evolution of i**ntellectual **p**roperty.”130 The protocol begins by stating its purpose as to “**protect** traditional knowledge **holders against** any **unauthorized exploitation** of their rights;131 **misappropriation**, misuse and unlawful exploitation beyond their traditional context”.132 This purpose succinctly addresses the major problems faced by TMK holders. In the analysis to follow, particular aspects of the Swakopmund Protocol relevant to TMK have been selected and will be discussed in detail. The strengths and weaknesses will be explored accordingly. 4.2.1 General Observations 4.2.1.1 Terminology The terminology used in the Swakopmund Protocol such as “local communities and traditional communities” is broad and encompasses a wider variety of groups which may possess TK unlike the use of terms such as “indigenous” which considered in various contexts may have the effect of limiting which groups may qualify as TK holders. This is a commendable feature of the Protocol and reflects a desire to broaden the scope of groups capable of protecting their TK provided the requirements stipulated in section 4 are met. 4.2.1.2 Regional Approach The Swakopmund Protocol adopts a regional approach to protection of TK. Section 24 in capturing the operation of the regional protection approach **mandates** that “**eligible foreign holders of TK shall enjoy** benefits of **protection** **to the same level as holders of t**raditional **k**nowledge and expressions of folklore who are nationals of the country of protection”.133 For TMK, this is commendable because in the African context, migration for various reasons is common place hence foreign groups may exist who hold TMK though not being nationals of the state in which they reside. Enabling such protection may motivate such groups to permit the exploitation of their knowledge without fear of differential or discriminatory treatment. Furthermore, this promotes the principle of non-discrimination and unified regional treatment thus setting the tone for regional cooperation and uniformity in protection awarded to TMK across the region. 4.2.2 Recognition of Peculiarities of TK The Swakopmund Protocol is drafted in a manner which recognises and accommodates accordingly the peculiarities of TK as demonstrated in the aspects below. i. Automatic Protection: Section 5.1 of the Swakopmund Protocol states that protection of **TK** shall not be subject to any formality therefore any knowledge which qualifies as TK134 **is automatically entitled to protection**. This approach is commendable and is in the view of the author entirely correct. The holders of TMK in Africa are in some cases isolated from mainstream society135 thus it is impractical to demand formalities as a prerequisite to granting protection because access to executing the formalities required could prove difficult for such groups. Additionally, formalities would likely involve the payment of various fees and registration paperwork which these traditional communities may not have the capacity to execute unassisted. The Swakopmund Protocol in this regard remedies a flaw found in the patent system by eliminating the need for formalities. Communal Ownership: Section 6 in describing who the holders of TK are recognizes the concept of communal ownership. **Express reference is made to owners being “local and traditional communities”**.136 This **overcomes** a further **shortcoming** of the patent system in that the patent system is **centered on individual ownership and exclusivity**. Continued Use in the Traditional Context: Section 11 **enables continued use of TK in the traditional context without** **any legal implication despite issuances of licenses** or other access agreement with knowledge seekers. This is in sharp contrast with the patent system which entails essentially grants the author a monopoly over the use of the invention. Unauthorized use of a patented pharmaceutical product amounts to an infringement of the rights which accrue to the patent holder. In the traditional medical context, this section is vital because TMK in traditional communities and other parts of the population is widely depended upon as the primary means of treatment137. As a result, the **right to health**, life and self-preservation **remains unaffected** even with the existence of the Swakopmund Protocol. Duration of Protection: The duration of protection for TMK if protection were sought under the patent system would be 20 years138. Once the 20-year period has elapsed, the “invention” falls into the public domain. The provision of a fixed term of protection for TMK is not appropriate for its nature. The Swakopmund Protocol remedies this shortcoming of the patent system by **granting protection to TMK holders in perpetuity** according to section 13. This accommodates the essence of TMK as it is held by the “present owners and their descendants in perpetuity rather than for a limited period.”139 It should be noted however that this does not apply where TMK belongs exclusively to an individual140. 4.2.3 Rights Conferred Upon TK Holders Authorization and Prevention of Exploitation: **Rightsholders have the exclusive right to prevent exploitation of TK without their prior informed consent** and to authorize its use as noted in section 7141.The definition of “prior informed consent” contained in the Swakopmund Protocol142 requires that complete and accurate information be provided to the concerned communities. Although some parties seeking to utilize TMK may come in good faith or bona fide, others may come with bad intentions or mala fide.143 Various local communities have different levels of exposure hence may be vulnerable. This is not to say that local communities lack intellectual capacity nor that they are incapable of representing their own interests. Rather, it is simply to take cognizance of the situation which obtains. Usually, parties who seek to benefit from or utilize TMK are researchers from multinational companies. Thus, there may be a language or other cultural barrier to direct communication with TMK holders. It is therefore submitted that to protect the interests of traditional communities and to enable genuine prior informed consent to be sought, translation services and an “educated” representative must be present to facilitate this communication. Appropriate evidence of the intended use of the TMK and various projections must be presented and fully disclosed during these discussions. Ensuring that such mechanisms are in order and available will empower communities to effectively exercise the right to authorization of use of their TMK. Institution of Legal Proceedings: In the event of unauthorized use of TK, Section 7.4 confers upon local communities the right to institute legal proceedings. In order to do so, some degree of knowledge and representation is necessary. Therefore, the protection of TMK goes beyond mere independent defense by the concerned local communities but requires the involvement of other parties with various levels of expertise to enable traditional communities to fully and effectively assert their rights144. Moral Rights: Moral rights are addressed in section 10 where the Swakopmund Protocol obliges persons to acknowledge the holders, source and origin of TK in a way that respects the cultural values of its holders. This section essentially deals with the right to recognition of the author(s) and is especially important as many aspects of TMK culminate in the development and production of pharmaceutical drugs, herbal products and alternative treatments in the absence of recognition of the role played by TMK in the development process. Such acknowledgement should be given “in a manner that respects the cultural values of its holders.” Therefore, by necessity, parties seeking permission or access to use TMK must to some extent be familiar with the culture of the traditional community from whom they seek knowledge. However, it is unreasonable to expect that all who seek to explore TMK be well versed in the culture of the local community hence a possible practical suggestion may be to insist that such ones gain basic knowledge of respectful cultural practice in the context of the TMK required. Licensing Agreements: The owners of TK have the right to conclude licensing agreements in writing for the use of their knowledge according to section 8 of the Swakopmund Protocol. The written document requirement creates the need to provide support to local communities in the form of knowledgeable neutral individuals capable of representing the interests of traditional communities in such licensing agreements. The issue of compulsory licensing which is a common feature of the patent system is regulated in section 12. It grants the State the mandate to issue a compulsory license where “protected traditional knowledge is not being sufficiently exploited by the rights holder” or where “the rights holder refuses to grant licenses subject to reasonable commercial terms and conditions” only in the interests of public health or public security in order to fulfil national needs. In my view, section 12 by creating a compulsory licensing provision demonstrates balance and a desire for the wider community to benefit from TMK and takes cognizance of the right to healthcare. Notably, the same section does not allow traditional communities to be taken advantage of when these compulsory licenses are issued rather makes provision for appropriate compensation to be given to the traditional communities concerned. At this juncture, a fundamental question arises; does section 12 directly or indirectly create an obligation to exploit TK? In my view, an obligation to exploit TK has been created. Insufficient exploitation (provided the public health or safety requirement is met) constitutes valid grounds for issuance of a compulsory license. Effectively, the Swakopmund Protocol obliges traditional communities to exploit their TMK and this interferes, although for good reason, with their right to decide who may have access to 43 their TMK. However, no description is provided of what would qualify as sufficient or insufficient exploitation. It may then be presumed that an assessment of the prevailing circumstances in each case would have to be undertaken to make this determination. Perhaps, the national authority or a court of competent jurisdiction may be called upon to make such an assessment. It is submitted that although compulsory licensing reduces the extent to which traditional communities may autonomously regulate the use of their TK, this is with good reason particularly in the context of TMK as a greater purpose is served. v. Equitable Benefit Sharing: **The sharing of benefits derived from commercial** or industrial **use** of TK **is to be determined by mutual agreement between the parties** according to section 9 of the Swakopmund Protocol145. The benefit sharing may extend to non- monetary rewards146. The provision for sharing of non-monetary benefits is a practical one as the needs of traditional communities may vary. Particularly in the context of **TMK**, **benefits** derived may **include the development of new drugs or treatments**. The Swakopmund Protocol leaves much room for discussion between traditional communities and access seekers. This “flexibility” may be viewed from two perspectives. On one hand, it may be advantageous in terms of freedom of contract and that non-rigid rules of benefit sharing accommodate various kinds of TK being incorporated into agreements. On the other hand, in the interests of local communities it may have been desirable to include minimum equitable benefit sharing standards.

#### Disclosure of Origin ensures that original TMK owners are able to get compensation and are protected from exploitation.

Sinkala 17, Ruth M. "Protection of Traditional Medical Knowledge in the Patent System: Is There Room?." (2017). (Master Programme in Intellectual Property Law at University of Uppselett)//SidK

3.4.1.2 Disclosure **Disclosure** **is a defensive protection mechanism** which has been pushed forward by the CBD and the IGC92. The introduction of a disclosure requirement **would compel patent applicants to disclose the source or origin of their TK**. This requirement **would** undoubtedly **bring** **forward the true holders of the TMK** thus contribute to **ensuring that patents are not granted erroneously** as often as they would be in the absence of such a requirement. The practical implication of disclosure however would not be merely to mention the origin or source of the TMK, rather it would be **necessary to demand** that the **required procedure in obtaining the TMK has been followed and necessary agreements have been concluded**. The disclosure requirement has been applied in different ways in various jurisdictions in patent law. 3.4.1.2 Disclosure Disclosure is a defensive protection mechanism which has been pushed forward by the CBD and the IGC92. The introduction of a disclosure requirement would compel patent applicants to disclose the source or origin of their TK. This requirement would undoubtedly bring forward the true holders of the TMK thus contribute to ensuring that patents are not granted erroneously as often as they would be in the absence of such a requirement. The practical implication of disclosure however would not be merely to mention the origin or source of the TMK, rather it would be necessary to demand that the required procedure in obtaining the TMK has been followed and necessary agreements have been concluded. The disclosure requirement has been applied in different ways in various jurisdictions in patent law. For example, a full disclosure requirement has been introduced into the national laws of Egypt and India with various degrees of strictness or rigidity. Sweden has adopted a more lenient version of the disclosure requirement stating that patent applicants should disclose the origin of TK but are not required to disclose and that failure to disclose will not affect the patent examination or the validity of the issued patent93. On the other hand, in South Africa the disclosure requirement is strictly enforced and failure to comply will result in invalidity or unenforceability of the patent at issue.94 It is submitted that in order for disclosure to operate effectively as a defensive mechanism, the disclosure required should be mandatory and detailed. Thus, patent applicants would be compelled to disclose and be unable to obtain the desired patent without complying. 3.4.1.3 Advantage of Defensive Protection i. Preservative: The documentation of TMK as a component of defensive protection has a preservative effect. Owing to the volatile nature of TMK, documenting the information to whatever extent serves the purpose of creating a record of its existence thus making it less susceptible to complete loss.

# Case

## Framing

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#### Extinction outweighs—we’ll defend cessation of whole brain function:

#### A). Reversibility and timeframe—biological death is permanent and irreversible while social conditions and oppression can improve over the long run

#### B). Ontological prerequisite—other theories presume a moral subject that can create value, so biological existence is a prerequisite

**Paterson 03** – Department of Philosophy, Providence College, Rhode Island (Craig, “A Life Not Worth Living?”, Studies in Christian Ethics, http://sce.sagepub.com)

Contrary to those accounts, I would argue that it is death per se that is really the objective evil for us, not because it deprives us of a prospective future of overall good judged better than the alter- native of non-being. It cannot be about harm to a former person who has ceased to exist, for no person actually suffers from the sub-sequent non-participation. Rather, death in itself is an evil to us because it ontologically destroys the current existent subject — it is the ultimate in metaphysical lightening strikes.80 The evil of death is truly an ontological evil borne by the person who already exists, independently of calculations about better or worse possible lives. Such an evil need not be consciously experienced in order to be an evil for the kind of being a human person is. Death is an evil because of the change in kind it brings about, a change that is destructive of the type of entity that we essentially are. Anything, whether caused naturally or caused by human intervention (intentional or unintentional) that drastically interferes in the process of maintaining the person in existence is an objective evil for the person. What is crucially at stake here, and is dialectically supportive of the self-evidency of the basic good of human life, is that death is a radical interference with the current life process of the kind of being that we are. In consequence, death itself can be credibly thought of as a ‘primitive evil’ for all persons, regardless of the extent to which they are currently or prospectively capable of participating in a full array of the goods of life.81 In conclusion, concerning willed human actions, it is justifiable to state that any intentional rejection of human life itself cannot therefore be warranted since it is an expression of an ultimate disvalue for the subject, namely, the destruction of the present person; a radical ontological good that we cannot begin to weigh objectively against the travails of life in a rational manner. To deal with the sources of disvalue (pain, suffering, etc.) we should not seek to irrationally destroy the person, the very source and condition of all human possibility.82

## Case

#### Multiple Alt causes to the Aff – crops, cosmetics, food.

Silva 20 [Daniella Silva (reporter for NBC News focusing on the economic recovery and its effect on families, as well as immigration). “Biopiracy: the largely lawless plundering of Earth’s genetic wealth”. Landscape News. 15 December 2020. Accessed 8/26/21. <https://news.globallandscapesforum.org/48905/biopiracy-the-largely-lawless-plundering-of-earths-genetic-wealth/> //Xu+Elmer]

**Commercialization of genetic resources** is a booming business. **From** drugs and **cosmetics to teas and genetically modified crops,** **plant and animal materials are ubiquitous in consumer markets**. Many of these products are **aggressively protected** **by patents** that profess the products’ “novelty” and “innovativeness.” But these products are arguably neither new nor innovative, as their use of genetic resources has been developed based on existent traditional knowledge of the natural world, often held among Indigenous groups and rural farmers. Yet, these traditional knowledge holders are rarely compensated for their role in producing and safeguarding the biodiversity from which the patent-holders profit. This phenomenon is known as biopiracy. The term biopiracy was coined in the early 1990s by Pat Mooney, founder of ETC Group – an organization which works to protect the world’s most vulnerable people from socioeconomic and environmental impacts of new technologies – to describe the theft or misappropriation of genetic resources and traditional knowledge through the intellectual property system. It also encompasses unauthorized and uncompensated collection of genetic resources for commercial purposes. One of the most widely cited examples of biopiracy is that of U.S. multinational corporation W.R. Grace’s 1994 patent for a neem tree seed extract used in their antifungal spray, Neemex. Although the company claimed its patent was the product of a unique invention, neem extracts had been used by rural farmers in India for more than 2,000 years in insect repellants, soaps and contraceptives. After years of activists and farmers fighting the patent, it was overturned by the Environmental Protection Organization (EPO) in 2000 due to “lack of novelty and innovative step.” While the neem patent was overturned, it is often difficult to legislate against biopiracy as the term has no single legal definition, and regulations around it differ by region. This ambiguity leaves plenty of room for countless cases of companies patenting everything from gene sequences to crop varieties to human cell lines without fairly compensating the countries and communities of origin. It’s not that the intellectual property system is invalid, notes Susan Bragdon, director of Seeds For All and policy advisor at Oxfam Novib. But when it comes to traditional knowledge holders and Indigenous rights, “the patent and intellectual property system wasn’t designed to provide benefits to communities,” she says. Critics of the current patent system, including Mooney, believe that current intellectual property regimes threaten Indigenous rights, favor monopolies over biodiversity and increase social inequities because they allow powerful people and groups to own the most basic building blocks of life. The specter of colonialism Biopiracy is historically rooted in colonialism. Top commodities like sugar, pepper, quinine and coffee were all taken from formerly colonized countries via Western trading companies that plundered local ecologies for profit. Today, environmental activists like the prolific Indian author and researcher Vandana Shiva have argued that patenting genetic material or other components of living organisms is comparable to “the second coming of Columbus” because of how it has reinforced colonial power dynamics between the Global North and South. “90 percent of genetic resources are in the South and 90 percent of patents are in the North,” noted Green Member of European Parliament Sandrine Bélier in an interview with EurActive. Another parallel Shiva draws between biopiracy and colonialism is in the way that pirated seed resources are used to create forced crop monopolies. In her book, “Biopiracy: the plunder of nature and knowledge,” Shiva cites how Monsanto took steps to flood the Indian marketplace with patented cotton seeds in the early 2000s, which resulted in a cotton monopoly that sent many farmers into debt because of the steep price increases and royalties Monsanto charged for their special seeds. Such categorical rules over a market also prevent local farmers from saving and sharing seeds to propagate diverse crops that are well adapted to microclimates and specific conditions, as they have often done for centuries. “There is a fundamental clash between the idea of (Western) technological progress and the idea that no one group or individual has a ‘right’ to monopolize genetic resources,” says Manuel Ruiz Muller, director and principal researcher of the Peruvian Society for Environmental Law (SPDA). “Cultural and human rights often collide with economic rights and intellectual rights.” Toward fair access and benefit sharing The key question is: how can humans share in the use of the Earth’s genetic resources while protecting the rights of smaller actors like developing governments, local communities and Indigenous people? While there are many pieces of legislation dealing with biopiracy and intellectual property rights, the U.N. Convention on Biological Diversity (CBD) and its Nagoya Protocol on access and benefit sharing have been especially influential. The Nagoya Protocol is an international legal framework under the CBD that aims for fair benefit sharing of profits associated with use of genetic resources. It obliges governments and the private sector to establish transparent, mutually agreed-upon terms for how benefits from the use of genetic resources will be shared. But the current framework is riddled with pitfalls. In 25 years, few access and benefits contracts – which legally dictate fair and equitable sharing of benefits from genetic resources – have come about as a result of the Nagoya Protocol, and those that have often result in trivial profits flowing back to traditional knowledge holders, according to an article from Intellectual Property Watch. Access and benefits contracts for genetic materials do not always result in a direct commercial application, and even when they do, the percentage of benefits that flow back to communities can be as low as 0.1 percent of total corporate profits, according to an article from Trade for Development News. “You’ve noticed the piles of money pouring into the coffers of Indigenous peoples and peasants around the world because of access and benefits agreements, right?” Mooney asks with sarcasm. “Of course not. It’s virtually nothing.” Some experts including professor of international governance at the University of Leeds, Graham Dutfield, argue that ending biopiracy would require ceding political space to Indigenous and marginalized groups so that they are on more equal footing to negotiate benefit sharing. But even when political goodwill is present, there are many practical barriers to successful access and benefits regimes. It is possible to have multiple traditional knowledge holders across different countries for the same herbal medicine, for example. In such situations, it is not clear with whom pharmaceutical companies hoping to develop a drug should negotiate benefits or how those benefits will be shared with diverse cultural groups. “I think access and benefit sharing hasn’t proven to be a good mechanism to reward and incentivize communities that are shepherding and managing biodiversity,” says Bragdon. “There haven’t been sufficient benefits to halt the erosion of biodiversity. I think it’s been highly problematic.” Digital Dilemma Additionally, access and benefits agreements often interpret genetic resources as physical matter, which ignores the modern reality of digital DNA and cloud storage. Researchers can freely access many gene banks without agreeing to disclose potential commercial applications or share benefits resulting from their work. “The issue [with biopiracy] today is that companies and private actors can take out patents on digital sequences of DNA – it’s not just about the physical seeds,” says Mooney. “We see companies sucking up all the genetic information they can and storing it on their proprietary clouds.” There are talks of including digital sequencing information (DSI) – disembodied pieces of genetic code – in the CBD, meaning researchers and companies would have to pay to use and copy gene bank information. But the move has been met with resistance. A 2018 article in Science magazine argues that including DSI in an international agreement against biopiracy could “stifle research, hamper the fight against disease outbreaks, and even jeopardize food safety.” Both Mooney and Ruiz Muller are skeptical of these claims. “The critique is misplaced and has to be nuanced substantially,” says Ruiz Muller. The current CBD and Nagoya Protocol have a transactional approach to access and benefit sharing in which two parties negotiate a contract for the use of a particular genetic resource. Under such a system, he argues that including “natural information” – a better term for DSI – in a new framework could negatively impact research; it could lead to countries racing to claim sole jurisdiction over certain pieces of widespread genetic resources and actively competing against one another for contracts.

#### Alt Causes is offense – it’s a guise for the Settler State to continue violence under the guise of benevolence drawing Indigenous movements into a trick of time by false reforms.

#### Patents effectively preserves Indigenous Medical Knowledge which solves Biopiracy.

Erstling 8, Jay. "Using patent to protect traditional knowledge." Tex. Wesleyan L. Rev. 15 (2008): 295. https://open.mitchellhamline.edu/cgi/viewcontent.cgi?article=1187&context=facsch (Professor of Law, William Mitchell College of Law, St. Paul, Minnesota.)//Elmer

WHY PATENT PROTECTION? Putting the differences in the above paragraph aside, a recent WIPO IGC consultation paper reported that "a significant number of patent applications concern inventions which are in some way related to traditional knowledge."12 A community's new and innovative advancements in TK may meet the requirements to qualify as patentable inventions, for example. In such cases, the holders of the TK need to ask whether they wish to take advantage of patent protection, whether it is in their best interests to do so, and assuming positive answers to both questions, whether they have the resources to file, prosecute, and enforce patent applications. More typically, inventions claimed by others may make use of a community's TK in that the others will derive their inventions from the TK or base their inventions on it.13 When inventions derived from TK become the subject of patent applications, the relationship between the inventions and their underlying TK may be key to the inventions' patentability. For example, the TK may constitute prior art that destroys an invention's novelty or non-obviousness. As prior art, failure to disclose the TK may result in a violation of the duty in United States patent law to disclose all known information material to patentability. 4 The TK may also directly relate to the question of inventorship and entitlement to apply for a patent since the holders of the TK-and not the named inventor-may constitute the true inventors or co-inventors of the claimed invention. It is clear, then, that **there are critical links between TK and the patent system**. The question is whether and if so, how, those links can be exploited **to foster protection for TK**. This question is not a new one and has been the subject of considerable scholarship. 15 The answer, which may prove more difficult to achieve than to posit, seems to lie in the objectives of the patent system itself. While the primary objective of patent law is affirmative, i.e., to enable the grant of exclusive patent rights for qualifying inventions, a **patent system** also **has** an **important defensive objective**, **to ensure** the denial of rights to inventions that are already known or lack a sufficient level of inventiveness. In addition, a patent system has a vital informational objective, to guarantee the disclosure to third parties of all relevant information concerning the invention as a quid pro quo for the grant of exclusive rights. Countries wishing to use patents to protect TK would do well to consider measures that reflect all three objectives. Such a threepronged approach would focus on putting into place legislative or other mechanisms to provide for (1) defensive protection of TK, (2) disclosure of TK, with consequent provision for benefit sharing, and/ or (3) affirmative protection of qualified TK through the grant of patent rights. Defensive protection would ensure that **none other than the holders of TK would be able to acquire i**ntellectual **p**roperty **rights** **over that knowledge**. a6 **Effective measures would include,** on the one hand, the adoption of legislation that recognizes TK as prior art and the creation of information systems to make TK searchable by patent offices,17 and, on the other, the **establishment of strong trade secret measures that allow the holders of TK to maintain the confidentiality of their knowledge should they choose to do so**.' 8 At the heart of the second prong-disclosure and benefit sharing-is **a community's right to maintain control over its TK**. Inherent in that control are measures that would require applicants for patents for inventions derived from or based on TK to disclose in the patent application the geographic source of that knowledge and to provide assurance that there has been prior informed consent to make use of the knowledge. The third prong of affirmative protection would make available information, mechanisms, and resources to holders of patentable TK to make sure that those who wished to take advantage of patent protection were able to assert their rights. WHY PROTECT TRADITIONAL KNOWLEDGE? Why should communities that hold TK choose to protect it? There is of course a moral rationale for protection, i.e., that communities should have the right to make use of their own TK pursuant to their own customs and policies, free from misappropriation or misuse by others. In addition, holders of TK may be motivated by economic, social, and environmental interests. Professor Graham Dutfield, a noted scholar on TK and intellectual property protection, has examined several of those interests. 19 With respect to economic mo tivators, Professor Dutfield has found that "[s]ome **indigenous** and local **communities** **depend on traditional knowledge** **for** their **livelihoods** and well-being, as well as **to sustainably manage and exploit their local ecosystems**. ' 2° For example, the World Health Organization (WHO) estimates that up to 80% of the world's population relies on traditional medicine for primary health care, and organizations such as the Food and Agriculture Organization (FAO), the World Bank, and the United Nations Environmental Programme (UNEP) now encourage the use of TK in sustainable rural development programs. Protecting TK could therefore "help local people to maintain livelihood security and physical well-being while providing opportunities for economic development."'" Protecting TK may also **benefit national economies by giving countries greater control over the commercial use of their knowledge.** TKbased products, including plant-based medicines, health products, cosmetics, and non-wood forest products, represent many developing countries' value added and are a potentially lucrative source of export revenue, which sound use of TK protection could help realize. Because TK is often an essential element in the development of other products, such as pharmaceuticals, dietary supplements, personal care, pesticides, and even industrial enzymes, **protecting TK could also give developing countries an economic edge in doing business with the industries that make those products and thereby promote domestic growth**.22 Protecting TK can also provide significant environmental benefits.23 Contrary to the common stereotype that subsistence agriculture is environmentally unfriendly, **traditional methods of** farming and **natural resource management** often **incorporate** a **conservation ethic that can enhance biodiversity**. **TK protection would** not only **contribute to** the **preservation of** the world's plant and animal **diversity**, it could also **foster** the fair and efficient dissemination of **environmentally sound agricultural methods** while benefiting the traditional communities that created them. Finally, while the patent system has been accused of facilitating biopiracy by tolerating third-party patenting of TK, **using the patent system** appropriately to protect TK **can** serve more to **prevent biopiracy** than to permit it. Biopiracy generally refers to the exploitation of traditional knowledge or genetic resources-typically by multinational companies-without the authorization of the holders of that knowledge, and/or the patenting of inventions based on traditional knowledge without the consent of the knowledge holders or payment of compensation.24 Several cases of alleged biopiracy, including patents granted for neem, turmeric, the enola bean, and quinoa, have aroused controversy and focused attention on how patenting can lead to unjust results.25 Although it is extremely difficult to estimate the extent to which biopiracy actually takes place in any particular country, protecting TK could **provide** some **assurance against misappropriation by clarifying the duty that third parties owe to the holders of the knowledge** when the knowledge has contributed to an invention that is the subject of a patent application. Thus there are convincing reasons for turning to the patent system to protect TK. The view is far from unanimous, however, that doing so makes sound policy. Many traditional communities are reluctant to embrace the patent system. The high cost of prosecuting and enforcing patents may be one cause for caution on the part of TK holders. Another may be the structure of the patent system itself. At a recent seminar on intellectual property, biotechnology, traditional knowledge, and social issues co-hosted by L'Institution Sciences Po and McGill University, Professor Tania Bubela expressed the commonly held view that: There is a mismatch between the IP rights framework and TK. The main problem is that IP rights are time limited. Patenting of TK also requires public disclosure but most TK is based on cultural and spiritual beliefs that do not always agree with disclosure. It is also very difficult to know who holds the traditional knowledge. An ap- propriate balance needs to be struck between national economic interests and the needs of the communities to which TK owes its existence.... 26 Based on the same reasoning, the majority of "Indigenous Groups in Attendance" at a 2000 UNCTAD Expert Meeting on Systems and National Experiences for the Protection of TK, Innovations and Prac tices recommended that "[t]he current IPR system is inappropriate for the recognition and protection of traditional knowledge systems because of the inherent conflicts between these two systems.... 2 **If patents are to be used** effectively to protect TK, therefore, **the concerns of** the **holders of TK will have to be addressed and measures adopted that are compatible with their communities' values, norms, and objectives**. To the extent that some of the concerns may be based on lack of confidence in, or misconceptions about, the patent system, clarification and education will be essential to provide TK holders with both the self-assurance and the wherewithal to make appropriate use of patents.

#### Tying indigenous culture to environmentalism is part of the Western project to constrain indigenous identities.

Bosworth 10 (Kai A Bosworth - B.A.: Environmental Studies, Macalester College, Saint Paul, MN, 1/1/2010. “Straws in the Wind: Race, Nature and Technoscience in Postcolonial South Dakotan Wind Power Development,” <http://digitalcommons.macalester.edu/cgi/viewcontent.cgi?article=1007&context=envi_honors)//> rc sid

Some contemporary environmentalist discourses have built images of “authentic” ¶ indigenous experience, people, or knowledge to legitimate and authorize exclusionary ¶ and privileging practices (Braun 2002, Moore et. al. 2003). Romanticized images of ¶ Native American spiritual, physical, beneficial, and/or harmonious relationships to nature ¶ have become centralized around a discourse that anthropologist Shepard Krech has called ¶ the “Ecological Indian” (1999).¶ 5¶ These discourses are complex, and are articulated in ¶ different ways through social movements (Nadasdy 2005, Li 2000), popular television ¶ shows and movies (Sturgeon 2009), discourses of science and social science (Agrawal ¶ 1995, Latour 1993), and through economic development, tourism, and environmental ¶ politics (Braun 2002). For Braun, many contemporary conservation discourses have ¶ assumed, ¶ that safeguarding indigenous cultures would help protect nature, because ¶ indigenous peoples are thought to have an interest and/or expertise in sustaining ¶ existing ecological relations; or, alternately, that the preservation of nature is ¶ necessary to preserve indigenous cultures, because they are seen to have a ¶ necessary relation to nature…Indigenous identities are defined and contained ¶ within the environmental imaginaries of European environmentalists and the ¶ postcolonial nation-state” (2002, 81).

#### Biomedicine itself is invested in colonial exploitation through testing done on indigenous communities to biopiracy and stealing indigenous knowledge.

Lift Mode 17 3-10-2017 "Pharmaceutical Colonialism” <https://medium.com/@liftmode/pharmaceutical-colonialism-3-ways-that-western-medicine-takes-from-indigenous-communities-3a9339b4f24f> (We at Liftmode.com are a team of professionals from a variety of backgrounds, dedicated to the mission of providing the highest quality and highest purity nutritional health supplements on the market. We look specifically for the latest and most promising research in the fields of cognition enhancement, neuroscience and alternative health supplements, and develop commercial strategies to bring these technologies to the marketplace.)//Elmer

Does **modern medicine take from rural communities**? At first, this seems outrageous. However, on closer inspection, we find three main methods of poaching: **stealing indigenous knowledge**, ‘**biopiracy’**, and the sale of pharmaceuticals at exorbitant prices. Another example includes **using** **developing countries** and rural populations **as test subjects in unethical clinical trials** — for example on **AIDS patients in South Africa**.[1] This article examines three methods that Western medicine takes from rural communities. We also examine the emerging new forms of medicine and how many people are beginning to appreciate the medical knowledge of different cultures around the world. Traditional knowledge and culture is threatened by the expansive natural of the pharmaceutical industry 1. Pharmaceutical colonialism: Stealing Indigenous Knowledge First and foremost, what has been taken from indigenous communities for the last roughly 600 years is traditional knowledge about medicinal plants. It is interesting that the **major advancements in Western medicine** **coincide** very closely **to escalating global colonialism** by Western countries. It’s difficult to estimate the exact percentage of **modern drugs** that were **originally based on traditional plant sources**, because of the complex evolution of Western laboratory-made medicine. However, this percentage is known to be very high. In fact, a 2006 paper by Dr. A Gurib-Fakim states: “Natural products and their derivatives represent **more than 50%** of all the drugs in clinical use in the world. Higher plants contribute no less than 25% of the total.”[2] The extent to which traditional knowledge permeates through Western medicine is too broad to explain fully in a small article like this. We’d need to write an entire book to cover the full content! So, we will just take a look at one example below. How the West takes Indigenous knowledge: **Anti-Malaria Drugs** Mosquitoes are, by far, the world’s most dangerous animals, spreading a number of diseases including Dengue fever, Zika virus, and malaria. According to the World Health Organization, nearly half of the world’s population is at risk of malaria. In 2015, over 210 million people became infected with malaria, and a staggering 429 000 people died from the blood parasite.[3] To combat the infectious disease, scientists have developed two major classes of anti-malarial drugs. These are both based on indigenous knowledge of plant medicine: Mosquitos kill more people than any other animal every year 1. Quinine Quinine is extracted from the bark of the cinchona tree, native to South America. Contrary to propaganda by the Spanish inquisitors, which is still used in modern medicine today, Westerners did not ‘discover’ the cinchona tree. Indigenous Peruvian cultures had been using the bark of the cinchona tree for hundreds, possibly thousands, of years before the arrival of the colonial forces from the North. They crushed it up and mixed it with water to ‘relieve shivering’ — a major sign of the feverish symptoms of malaria.[4] Unlike traditional Chinese knowledge, which has survived until modern times, the ancient knowledge of South America cultures was almost completely destroyed by colonial forces. This makes tracing the historical use of the cinchona tree more difficult.[5] After the inquisition of most traditional cultures in South America, the cinchona bark was brought back to Western Europe and was hailed as one of the most exciting discoveries of modern medicine. The success of cinchona bark in Europe created a massive industry, initially run by the Spanish, but which was later overtaken by French and English industrialists.[6] It’s important to know that the ‘traditional’ use of cinchona bark in 18th century Europe was in exactly the same method as its original use in indigenous societies: crushing up the barking and mixing it with water. The chemical compound quinine was first extracted from cinchona bark in 1820 by two Frenchmen: Pierre Joseph Pelletier and Joseph Caventou. This allowed purified quinine to replace traditional cinchona extracts.[7] Interestingly, Western scientists have since discovered that cinchona bark actually contains several active components, which function in a synergistic relationship to kill the malaria parasite.[8] In modern times, a number of quinine-based drugs have been developed, with varying success. The issue becomes complex here because, while these drugs were developed by Western scientists using modern technological laboratories, if it hadn’t been for the original indigenous knowledge, these compounds could not have been developed at all. The quinine derivatives include Chloroquine, Pyrimethamine, and Mefloquine. Chloroquine was used as a spray along with DDT in the WHO’s malaria eradication plan (the efficacy and usefulness of this are still under debate: numerous countries that were sprayed with these chemicals soon developed strains of malaria that were resistant to the drugs).[9] 60411828 - workers are fogging for dengue control. mosquito borne diseases of zika virus. Quinine-based drugs were used in sprays to combat malaria around the world 2. Artemisinin **Artemisinin** is an active compound found in traditional Chinese medicine called Qinghao Su (sweet wormwood). This traditional Chinese medicine has been **used to treat fevers** for over a thousand years. It is currently still extracted from plant sources, the majority of which are grown in China, Vietnam and East Africa. Once the full-grown plants are harvested, the chemical is extracted, leaving the pure artemisinin at a highly variable market price of between $120 — $1200 per kilogram.[10] It’s interesting that the artemisinin-based drug combinations (ACTs) are the most expensive anti-malarial treatments available. This is despite the fact that it is one of the few malarial medications that are still mostly plant-based. However, **Western pharmaceutical** companies are now **developing synthetic** forms of **artemisinin**. The new forms of artemsinin are genetically engineered and have intellectual property rights attached, potentially bringing in big revenues for the companies involved. The proponents of the synthetic form of artemisinin claim that the synthetic form will be able to be sold for cheaper than the natural form. However, the average import price of natural artemsisin to India over the last ten years was around $370 per kilo — a fair amount cheaper than the price that the pharmaceutical companies are pushing for.[11] **Artemisinin farming** **sustains** the **livelihoods of** an estimated **100’000 farmers.** With **synthetic derivatives** being developed this **puts** the **livelihoods** of the farmers and their families **at risk of poverty** (estimated to be around 3–5 times the number of people as the farmers themselves).[12] The ironic and disturbing thing about the whole situation is that the artemisinin farmers themselves are the ones who are most at risk of contracting malaria. In effect, they stand to not only have their incomes stripped by Western pharmaceutical companies but also to become physically dependent on the products of those very companies. [13] 16118463 - portrait of a burmese woman with thanaka powdered face working in farm Farmers livelihoods are threatened by the use of

#### Using Patents to enforce Traditional Knowledge Protection has precedent.

Erstling 8, Jay. "Using patent to protect traditional knowledge." Tex. Wesleyan L. Rev. 15 (2008): 295. https://open.mitchellhamline.edu/cgi/viewcontent.cgi?article=1187&context=facsch (Professor of Law, William Mitchell College of Law, St. Paul, Minnesota.)//Elmer

Advantages of Affirmative Protection Despite the above-mentioned limitations and challenges, **patents have a place in a TK protection system**. A **prime example is** the use of patents to protect **Traditional Chinese Medicine**. The practice of Traditional Chinese Medicine dates back to the beginning of Chinese history. At its most basic, it is "a systematic practice of distinguishing among various illness-causing imbalances of qi. [It] achieves health by restoring a patient's internal yin-yang equilibrium via herbal remedies and physical manipulation."1'69 Traditional Chinese Medicine is of **enormous importance** not only **to** the **Chinese**-**and** the **world's healthcare systems**,

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