Global Biopiracy

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Ikechi Mgbeoji

Global Biopiracy: Patents, Plants, and Indigenous Knowledge

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In the course of writing this book, death has dealt me three savage blows, and it is to the collective memory of three people that I dedicate this book:

My beloved sister, Eziaha Ocheze Mgbeoji,
who passed away in September 2000

My wonderful mother, Victoria Alumugbo Mgbeoji,
who passed away on 6 January 2001

My inspirational father, Levi Esiwoko Mgbeoji,
who passed away on 11 July 2004

Though dead, you all live in my heart and memory forever

Fare Well!!!

Contents

Foreword

The word "biopiracy" was coined to name a phenomenon that is not new but that has flourished under colonialism, capitalism and, more recently, globalization. By naming it, contemporary scholars have challenged a form of exploitation of peoples and of resources that now poses a threat to both cultural and environmental sustainability. The term "biopiracy" is a direct challenge to the legitimacy of activities that have entered the mainstream of contemporary global capitalism.

This book by the brilliant young scholar Ikechi Mgbeoji is at the forefront of the literature on this important topic. Dr. Mgbeoji provides a trenchant critique of increasingly globalized patent regimes and of how these regimes contributed to the appropriation of plant species and traditional knowledge of the use of plants. He also provides a rich historical, social, and legal context for his analysis and argues that Western ideologies and epistemologies have contributed to a devaluation of indigenous communities and their wealth of traditional knowledge. This devaluation is reflected in those aspects of modern patent law systems that leave traditional knowledge of the use of plants open to exploitation and appropriation. Although he is profoundly critical of the patent regime and of its use by powerful states and multinational corporations to further their own objectives, Dr. Mgbeoji is not without hope for the future. Indeed, his concluding pages contain concrete proposals for change.

The book, which is both rigorously scholarly and profoundly moral, greatly benefits from Dr. Mgbeoji's expertise in intellectual property law and international environmental law. This proficiency is significant because too much of the existing literature lacks a sound grounding in one or both of these fields. In addition to being rich in context, this book is interdoctrinal and interdisciplinary. Dr. Mgbeoji's understanding of the relevant law and institutions, his impressive grasp of the literature across a range of disciplines, and his clarity of vision inform this book and its cogent message.

Dr. Mgbeoji's work is intellectually rigorous and clearly expressed. It is also informed by a passion for justice and equity. I had the privilege of being his supervisor during his doctoral studies. He was a most outstanding graduate student and his brilliance is evident in this book. Dr. Mgbeoji is also a person who inhabits two cultures, whose experience spans both North and South. He is a scholar who can understand our own preconceptions while lifting us outside of them. This book is very much a product of this unique intellect: it is a challenging, engaging, ambitious, and ultimately very important work.

Dr. Teresa Scassa
Dalhousie Law School
Halifax, Nova Scotia
August 2005

Preface

Legal control and ownership of plants and traditional (indigenous) knowledge of the uses of plants (TKUP) is often a vexing issue, particularly at the international level, because of the conflicting interests of states or groups of states. The most widely used form of juridical control of plants and TKUP is the patent system, which originated in Europe. This book rethinks the role of international law and legal concepts, the major patent systems of the world, and international agricultural research institutions as they affect legal ownership and control of plants and TKUP. The analysis is cast in various contexts and examined in multiple levels. The first level of analysis deals with the Eurocentric character of the patent system, international law, and institutions. The second involves the cultural and economic dichotomy between the industrialized Western world, otherwise known as the North, and the "westernizing" world, otherwise known as the South. The North-South divide is untidy, perhaps generalized, but it is used here as a convenient tool of analysis. The third level of analysis considers the phenomenal loss of human cultures and plant diversity.

In examining these issues within the delimited contexts, *Global Biopiracy* argues that the Eurocentric character of the patent system and international law, the cultural and gender biases of Western epistemology, and the commercial orientation of the patent system are implicated in the appropriation and privatization of plants and TKUP. In other words, the phenomenon of appropriation of plants and TKUP, otherwise known as biopiracy, thrives in a cultural milieu in which non-Western forms of knowledge are systemically marginalized and devalued as "folk knowledge" and are characterized as being suitable only as objects of anthropological curiosity.

The implications of appropriation of plants and TKUP in an age of rapid biodiversity loss and homogenization of cultures traverse a gamut of issues, including the sustainability of biological resources, human rights, and distributive justice. Hence, the need to re-examine and redefine the role of patents and international law in the emerging process, bearing in mind the

imperatives of a fair and equitable regime on plants and TKUP. Given the interrelatedness of human rights, the commonality of humankind, and the indivisibility of the global environment, these processes are of universal import and ought to be addressed holistically. This book therefore locates the problems of biopiracy as a process of engagement with the question of reconstructing international law, attitudes, and the patent concept. More specifically, the contemporary intellectual property regime, particularly patents, must have a socially mediated core and an ethic of respect, inclusiveness, and diversity of cultures and values.

Acknowledgments

Global Biopiracy owes a lot to the ideas and inspiration of other people. This is particularly so with regard to a subject as complex and controversial as patents on plant life forms and traditional knowledge of the uses of plants. It is therefore proper for me to express my gratitude to those whose ideas I have borrowed or critiqued as well as to express my deep appreciation to the numerous persons who have assisted me in working towards what I have expressed here.

First, I sincerely thank Professor Teresa Scassa at Dalhousie University. From the earliest formulations of the topic, through its gestation and maturation, she provided incredible support, making pertinent suggestions and detailed commentaries. She was splendid, graceful, and resourceful. Her unflagging support also secured me research funding and international exposure, which have contributed immensely in clarifying my views, expanding my horizon, and challenging some of my arguments. I cannot fail to thank Professors David VanderZwaag and Hugh Kindred. David is an encyclopedia of knowledge and his boundless zeal and enthusiasm for international environmental law is better experienced than described. He facilitated my contacts with a lot of useful individuals and institutions, especially the United Nations Environment Programme.

Through his and Teresa's efforts, I was privileged to attend the fifteenth Global Biodiversity Forum in Nairobi, Kenya. From there, I secured the Carl Duisberg Fellowship for research at the Environmental Law Centre of the World Conservation Union, the International Union for the Conservation of Natural Resources (IUCN), Bonn, Germany. In addition, David has been wonderful in shaping my focus on the fundamental problems and theoretical issues of international environmental law. The government of Germany also contributed to the success of this work, especially by awarding me the Carl Duisberg Fellowship. While in Germany I had the privilege of working with several experts at the Environmental Law Centre (ELC) of the World Conservation Union, IUCN: Dr. Francoise Burhenne-Guilmin, Dr. Alexander

Timoshenko, Tomme Young, Dr. Nazrul Islam, Dr. Wang Xi, Isabel Martinez, and Charles Di Leva. The librarians at the ELC, particularly Annie Lukacs, were extraordinarily resourceful. In the course of searching for ideas and materials, I must mention the devoted help of friends such as Dr. Graham Dutfield and Yaw Osafo.

Professor Hugh Kindred and his lovely wife Sheila have been a source of strength, guidance, and comfort. Apart from Hugh's complete mastery of the intricacies of international law, his greatest contribution towards my intellectual development was the human touch that he brought to bear on the principles and ethos of international law. Several other professors and colleagues have been immensely helpful. They include Dick Evans, Aldo Chircop, and Wes Pue. Without the generosity of the Killam Trustees and Richard Owens of the Centre for Innovation Law and Policy, I would never have finished this book in good time.

The librarians at both Dalhousie Law School and Osgoode Hall Law School made an otherwise dreary and frustrating search for documentation an interesting endeavour. I therefore thank Julia Lavigne, Anne-Marie White, Annemarie Hay, Brenda Gillis, Debbie Ritchie, Carla Gobiessi-Lynch, David Michaels, and, of course, Ann Morrison. Sheila Wile has been a friend, confidante, and guide. My thanks to Molly Ross, Sandra Harnum, and Julie Dergal.

Special thanks too must go to the "Nigerian Legion" at Dalhousie University and Osgoode Hall Law School: Chioma Ekpo, Shedrack Agbakwa, Pius Okoronkwo, Annie Brisibe, Bonny Ibhawoh, Ralph Njoku, and Julius Egbeyemi. Special mention must be made of many other friends, especially Professor Obiora Okafor, Ugochukwu Ukpabi, Sonne Udemgba, Chika and Chinwe Onwuekwe, Chidi Oguamanam, Remigius Nwabueze, Chinedu Idike, and a host of other members of the "clan."

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Finally, I must thank my siblings, Ihuoma, Eze, Ebere, and Uchenna. In the course of my intellectual exile, I was devastated by the sudden deaths of my dearly beloved parents and sister. My family and friends have offered solace, inspiration, and encouragement. My brother-in-law, Samuel Ohiara, and my nephews have been wonderful. Of course, I am indebted to the pastor and members of the Seventh-Day Adventist Church in Halifax, whose prayers have been very helpful to me during the most trying moments. My thanks too to my in-laws: Sir and Lady T.T. Onyeaso, Adaeze, Udoka.

To Nkeiruka and our beautiful daughters, Chizaram and Maraelo, I say, I love you all with all my heart.

Acronyms

APEC	Asia-Pacific Economic Cooperation
ARIPO	African Regional Industrial Property Organization
CBD	Convention on Biological Diversity
CCM	common concern of mankind
CGIAR	Consultative Group on International Agricultural Research
CHM	common heritage of mankind
CITES	Convention for the International Trade in Endangered Species
CPC	Community Patent Convention
CSD	Commission on Sustainable Development
DNA	deoxyribonucleic acid
ECOSOC	UN Economic and Social Council
EPC	European Patent Convention
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
GATT	General Agreement on Trade and Tariffs
GDP	gross domestic product
GNP	gross national product
HYVs	high yield varieties
IARCs	International Agricultural Research Centers
IBPGR	International Board for Plant Genetic Resources
ICDPs	Integrated Conservation and Development Projects
ICJ	International Court of Justice
ICJ Reports	International Court of Justice Reports
IFF	Intergovernmental Forum on Forests
ILC	International Law Commission
ILM	International Legal Materials
ILO	International Labour Organization
ILR	International Law Reports
IMF	International Monetary Fund

IPR	intellectual property rights
ISA	International Search Agency
ITTA	International Tropical Timber Agreement
IUCN	World Conservation Union
LMOs	living modified organisms
LNTS	League of Nations Treaty Series
NAFTA	North America Free Trade Agreement
NGO	non-governmental organization
NIEO	New International Economic Order
OAPI	African Intellectual Property Organization
OAU	Organization of African Unity
PBRs	plant breeders rights
PCIJ	Permanent Court of International Justice
PCT	Patent Cooperation Treaty
PFFI	Permanent Forum on Indigenous Issues
PIC	prior informed consent
PSNR	Permanent Sovereignty over Natural Resources
RADIC	African Journal of International and Comparative Law
RAFI	Rural Advancement Foundation International
RNA	ribonucleic acid
TKUP	traditional knowledge of the uses of plants
TRIPs	Agreement on Trade-Related Aspects of Intellectual Property Rights
UNCED	United Nations Conference on Environment and Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNEP	United Nations Environment Programme
UNFF	United Nations Forum on Forests
UNGA	United Nations General Assembly
UNTS	United Nations Treaty Series
UPOV	Union pour la Protection des Obstentions Vegetales
WHO	World Health Organization of the United Nations
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Global Biopiracy

1
Introduction

Various factors have congregated to arouse a huge interest, indeed a controversy, with regard to the legal ownership of plant genetic resources and the knowledge associated with the uses of plants. This controversy has elicited calls for the creation of a regime dealing with access to and equitable sharing of the benefits of plant genetic resources. These issues are often conflated in what has become known as the issue of "indigenous peoples knowledge." The debate has often implicated a variety of issues, such as the imposition of Eurocentric legal concepts (e.g., the imposition of patents on non-European cultures and peoples), the impact of globalization, and emerging norms on legal control of knowledge. In addition, the debate has raised issues pertaining to the prevailing ideology of "civilization" and "development" and its impact on biological and cultural diversity. At the heart of the debate is the political economy and legal control of plant genetic resources and knowledge of their associated uses. Often ignored in the discourse is the fact that the processes by which the dominant cultures and states appropriate the traditional knowledge of Third World peoples are masked in technical, and sometimes diplomatic, understatements. Consequently, it is often difficult to discern the issues at stake or the scale of the disagreements between those involved.

Global Biopiracy explores the contours of that debate and attempts to explain the legal processes and institutional frameworks by which the patent systems of powerful states prey on the genetic resources developed by countries and cultures of the Third World. The main objective is to contribute to a more transparent and open debate, free from the obfuscation and technical shenanigans that have hampered an appreciation of the global forces at play in the appropriation of indigenous peoples knowledge. The debate as presently undertaken marginalizes and underappreciates the role of women and farmers in the development of plant genetic diversity. This is not a coincidence as, since its emergence during the Renaissance, Western science has been masculinist and racist.

Global Biopiracy is divided into six chapters. Chapter 1 is introductory and gives a broad overview of the issues covered. Chapter 2 explains basic concepts in international law, such as indigeneity and biopiracy, and explores the development of national but interlinked system of patent systems. Chapter 2 also provides an anatomy of the structure and process of the relationship between various national patent systems and the patchwork of international instruments seeking to harmonize national patent regimes. It also provides a multidimensional analysis of the evolution and globalization of the patent concept within the context of the North-South divide. Further, it offers a doctrinal analysis of the sources of international law on patents and their status and effect at the domestic level. The underlying theory is that, although the patent system is intrinsically international in an increasingly interactive world, it is, most significantly, aggressively nationalistic. It serves the instrumentalist goals of states, especially powerful multinational corporations capable of influencing and using the machinery of their parent state to influence the domestic patent regimes of other states. Accordingly, powerful states prodded by biotechnology and pharmaceutical firms, tend to favour patent laws that suit and serve their perceived national interests. In this context, the forced globalization of the patent concept owes much more to the influence of industrialized states and the propagation of their national self-interests than it does to altruistic concerns for the welfare of other states.

Chapter 2 is divided into eight sections. The first section traces the origin of the patent system from its roots in the Italian peninsula. The salient point is that the modern patent system is culturally and philosophically Eurocentric. The second section defines the concept of patents, while the third section explores various theories in support of the patent system. The fourth section examines the diffusion of the patent system from Italy to mainland Europe and the eventual imposition of the system of patents on non-Europeans during the age of colonialism and empire. Of course, there a few exceptions, like Japan, which instituted the patent system of its own volition. However, an overwhelming majority of states outside the Eurocentric paradigm and worldview received their patent laws and systems via colonial fiat and imperialist threat.

The fifth section deals with the historical evolution and development of the patent system within the cultural crucible of Europe. The objective is to demonstrate the inextricable link between European normative values and ownership of property vis-à-vis non-European concepts of property ownership. The sixth section briefly explores the influence of industries, especially the life science industries, on the concept and scope of patentable subject matter. Although this issue is dealt with in greater detail in Chapter 5, the objective is to demonstrate that the law on patentability has not

stood still; rather, it has moved in directions dictated by industry and the national interests of states. The seventh section takes the argument further by revisiting and interrogating the assumption that patents encourage inventiveness. It is probable that, with or without patent systems, inventions would occur. The eighth section explores the North-South dimensions of the patent system. It shows how the tensions between patent systems and indigenous peoples knowledge have been heightened by the globalization of the concept of patents. It also examines how the domestic applications of international norms on patents create a homogenous regime favourable to the interests of pharmaceutical and agricultural corporations. And it briefly examines recent attempts by the World Intellectual Property Organization (WIPO) to raise global consciousness with regard to the inadequacies of patent systems to protect indigenous peoples knowledge.

Chapter 3 analyzes the evolution, development, and status of the global regime on plants. The objective is to provide a background for subsequent analysis of the methods by which international institutions and the patent system appropriate indigenous peoples knowledge. This chapter has seven sections. The first section examines and evaluates the nature, value, and functions of plant life forms. The second section explores the various religio-philosophical conceptions and how those worldviews have influenced current debates on the patentability of indigenous peoples knowledge. Attention is paid to the philosophical divide between the dominant Judeo-Christian conception of plant life forms and non-Eurocentric philosophies, which often consider certain plants and their associated uses to be sacred.

The third section scrutinizes the influence of a gendered and racist conception of science and "civilization," which forms the subtext to the marginalization and delegitimation of non-European epistemological frameworks. In other words, the process of appropriation of indigenous peoples knowledge is not merely a legal problem; rather, it is a phenomenon that operates within a social structure of inbuilt primordial prejudices and biases against non-Western cultures and non-Western epistemological frameworks. The sum of these processes is the denial of the intellectual contributions of Third World women farmers and healers.

In consequence, domestic standards of patentability, along with the competing priorities, values, and interests of weaker states, have been squelched. Within this milieu of competition and conflicts, the interests of powerful corporations and states, which converge with capitalistic interests, seem to prevail. However, the nature of this conflict affects the domestic status of international instruments and their effect on patents. Weaker states determined to preserve their authority to legislate locally and to protect their threatened national interests may not enthusiastically embrace supranational institutions concerned with the promotion of foreign interests. The

principles of international instruments on patents will ultimately pass through the filter of domestic jurisdictions of states and their embedded national priorities, preferences, and values.

The fourth section deals with the phenomenon of plant distribution across the globe and its overall impact and influence on the politics of control of plant life forms. Most of the world's plant genetic diversity occurs in the Third World. This is not solely a function of the whims of geography: it is also a consequence of the enormous efforts of local and traditional farmers and breeders, over the millennia, to conserve and improve plants. However, the diversity of plant life forms is currently under severe threat from the processes of globalization and the consequent homogenization of cultures.

The fifth section deals with the issue of the multiple causes of the modern loss of plant life forms. Certain factors are identified and examined. These include the culture of consumerism, the inequitable global economic regime, overpopulation, agribusiness/bioprospecting and biotechnology, climate change, and the homogenization of cultures. These problems present enormous challenges to the fledgling body of international environmental law. The sixth section explores how international environmental law has responded to the challenges of the erosion and loss of plant life forms. Towards this end, the seventh section examines the provisions of and contributions to the jurisprudence on plants' genetic resources stemming from the Convention on Biological Diversity and the Food and Agricultural Organization of the United Nations' (FAO) Treaty on Plant Genetic Resources.

Chapter 4 deals particularly with the genesis and legal structure of the institutional means for the appropriation and privatization of plants and indigenous peoples knowledge. It is divided into five sections. The first section deals with the concept and mechanism of appropriation and privatization. The major institutionalized process for appropriation of plants involves the International Agricultural Research Centres (IARCs), which function as a conduit for funneling plant germplasm from the South to the North. This mechanism has largely operated under the nebulous and erroneous notion that plants from the South constitute part of the common heritage of mankind.

The second section explores the early beginnings of the appropriation and privatization of plants and TKUP. The third section tackles the question of whether the notion of the common heritage of mankind (CHM) is part of the accepted principles of international law, and, if so, whether it is applicable to plant genetic diversity and TKUP. The conclusion is that CHM does not apply to plants and TKUP. The fourth section examines the appropriative role and functions of the IARCs, while the fifth section explores the role of the FAO in the politics of plant life forms as well as how international law has responded to the question of the legal status of plant

germplasm stored in *ex situ* gene banks. As in the preceding chapters, the analysis is conducted within the context of the North-South divide.

Chapter 5 deals with the various methods by which the discordant values and policies of various patent regimes, particularly the United States patent system, have been adjusted and retooled to suit the interests of seed companies, pharmaceutical industries, and biotechnology industries. It is divided into two main parts. Given the differences between the law of patents on plants and TKUP, the first part deals specifically with plants and the development of the legal regime on patents on plants, particularly as it affects the appropriation and privatization of plants through the patent law mechanism. The second part is concerned with the appropriation and privatization of TKUP through the patent process.

The entire chapter is split into eight sections, all of which pay attention to the vagueness of and inconsistencies in the law on the criteria for patentability. All sections examine the various ways in which domestic legislative and judicial activities, especially in the United States and Western Europe, have been designed to facilitate the appropriation of plants and TKUP. Similarly, they examine the loopholes (as well as other juridical curiosities) that exist in the absence of a global standard on novelty and that facilitate the appropriation and privatization of TKUP.

The first section is introductory, while the second examines the changing concept of patentability as it relates to plants. The third section examines the patentability of TKUP. The fourth section examines the nature and quality of international law's response to the challenge of appropriation. Here, the normative thrusts at the soft law level and other emerging hard law commitments are juxtaposed and scrutinized. This section also offers a review and critique of modern ideas on how to stem the tide of appropriation. It gives some examples of how the patent system may be adjusted to accommodate the interests of marginalized cultures and societies that conserve plant diversity and TKUP. It pays particular regard to communal patents and a modified version of Plant Breeders Rights (PBRs).

The questions dealt with in Chapter 6, the concluding chapter, largely relate to the issue of the actual and probable consequences of an appropriative patent regime on plants and TKUP. These questions include, but are not limited to, the law of state responsibility as it affects appropriation and global food security. There are also questions pertaining to biosafety and the influence of patents on modified plants and the general environment.

The core focus of this book is on the sophisticated legal and institutional mechanisms that facilitate and legitimize the body of knowledge possessed by indigenous and traditional peoples concerning the various uses and properties of plants (as well as the derivatives and/or combinations thereof). Generally speaking, until recent normative changes, this body of knowledge

"has not been recognized as being either 'scientific' or valuable to the dominant culture and so has been freely appropriated by others."[1] *Biopiracy* argues that, in appropriating plants and TKUP, capital interests across the industrialized world have largely employed two distinct but mutually reinforcing methods; namely, institutional and juridical mechanisms and a gendered/racist construct of non-Western contributions to plant development and use. More important, the legal and policy factors that facilitate the appropriation of indigenous peoples knowledge operate within a cultural context that subtly but persistently denigrates the intellectual worth of traditional and indigenous peoples, especially local women farmers.[2] Cultural biases in the construction of knowledge provide the epistemological framework within which plant genetic resources developed by indigenous peoples are continually construed as "free-for-all" commodities – commodities that are just waiting to be appropriated by those with the cunning and resources to do so. The first mechanism of biopiracy is, arguably, the establishment of the International Agricultural Research Centres (IARCs).

The IARCs have essentially functioned as pipes through which plant germplasm flows from the South to the North. A facilitative instrument of the first mechanism is the patent system. Since the institution of the IARCs and the consequent development of commercial seed businesses in the North, there has been a deliberate relaxation of the traditional conditions for patentability of inventions. This process, which John Frow has described as the "intense process of commercialization and privatization of knowledge,"[3] diminishes the stock of information or resources in the public domain,[4] raising the question of what remains of state sovereignty in the age of globalization. With external forces dictating minimum standards as well as the scope of what may be patented, domestic sovereignty with regard to such phenomena has been usurped by "global" trade institutions whose goals may be incompatible with domestic imperatives and values.

The globalization of patent regimes ignores grassroots concerns about the particularities, perspectives, localisms, and contingencies of societies at various stages of development or with different conceptions of material well-being.[5] Given that patent laws have international implications, there is the corollary issue in international law of state responsibility for domestic juridical and cultural institutions that facilitate the appropriation of indigenous peoples knowledge. As an instrument of Western notions of capital and property, the patent system reveals an intentional socioeconomic and political instrumentality that is alien to many other cultural philosophies.[6] Thus, within the context of the global system, I argue that patent laws and institutions are designed largely to protect and serve the values and interests of propertied states, particularly the so-called North. The pertinent question, however, is whether this regime is compatible

with the increasing need for sustainable use of plant life forms, particularly in an age of globalization.[7]

From a strictly philosophical/analytical point of view, especially that proceeding from the Judeo-Christian conception of plants as the property of humankind, ownership of patents on plants, like other forms of property, is about relations between legal persons *inter se* as well as about property relations between plants and human beings.[8] It is doubtful whether patent rights over indigenous peoples knowledge[9] is reconcilable with alternative narratives of the ecosystem and ownership of property.[10]

The unease with conceptions of plants as mere economic units impels the need for a normative, distributive, and efficient assessment of the ramifications of appropriation of indigenous peoples knowledge. In this vein, *Global Biopiracy* serves a prescriptive purpose. Further, I argue that excessive and aggressive patent rights adversely affect the liberty of the public and increase to dangerous levels the power already possessed by those who privatize and appropriate knowledge. Unless this is checked, the overall consequence of this trend is that, with regard to "highly scientific/technological societies guided by cunning, very little is likely to remain free from appropriation."[11] Unless a normative and critical approach is taken to address the issue of appropriation of indigenous peoples knowledge, it is probable that, in addition to plants and knowledge, "all kinds of abstract information in the public domain will fall into private ownership."[12]

Patents, as units of the expression of property rights, must serve some moral value, but they cannot be the basis of moral value itself.[13] It is not enough to say that legal regimes, as legal instruments, exist to serve some ends; it would be better to engage in a vigilant and critical scrutiny of law as a means to an end. As such, international law on patents on indigenous peoples knowledge needs to be reoriented.[14] Legal concepts and institutions that merely constitute an avenue for the maximization of individual wealth at the expense of the overall integrity of the earth[15] and its supporting but marginalized human cultures and societies deserve critical reconsideration[16] and a radical shift in values.[17] As Chistine Frader-Frechette has urged, "we must shift from the individual to the community, from property to common heritage, from uniformity to diversity and poly-culture, from a short-term, quick returns view to a long-term sustainable approach, from exploitation to conservation of nature, from large scale projects to those of human scale."[18]

Global Biopiracy examines the structure and processes by which powerful states, prodded by multinational corporations, have used the norms and processes of the world's dominant patent systems to appropriate and privatize TKUP and various medicinal insights and practices of indigenous and traditional peoples. Beyond the misuse of the patent system,[19] I also look at

the causes and effects of the asymmetrical flow of plant germplasm and TKUP from the industrializing states to the industrialized states. I argue that biopiracy is not a matter of aberration or the occasional malfunction of the world's dominant patent systems. To the contrary, the appropriation of TKUP is a predictable and intentional theft of indigenous and traditional knowledge and resources. It is a phenomenon that also implicates plant genetic diversity, global food insecurity, and the various individual and collective human rights of indigenous peoples.[20] Ultimately, at the heart of the debate is what policy direction the patent system should take in order to benefit the global community.[21]

Biopiracy raises serious issues pertaining to the conservation of biological diversity and genetic resources in agriculture, the integrity of plant life forms, a just international economic order, and development. Since the emergence of the biotechnology industry, "biopiracy" has become a lighting rod for activists in the biodiversity and anti-commons debate. Interestingly, a preponderance of commentators on this and ancillary issues are anthropologists, geographers, political scientists, ecologists, agricultural economists, and environmental activists.[22] This trend has greatly enriched the quality and diversity of discourse and has also captured the imagination of many.

However, there is also a tendency for commentators not well versed in the intricacies of international law and the technicalities of domestic patent laws to gloss over or misstate relevant principles of intellectual property law. A prime example of this tendency, as noted above, is the pervading notion that CHM applies to plants within the jurisdiction of states. Similarly, there is a tendency among many commentators to treat the principles or doctrines of patent law as revealed truth – something inflexible and unalterable. Consequently, in this book I attempt to bring a predominantly legal perspective to a complex issue.[23]

Ultimately, *Global Biopiracy* seeks to reconstruct a framework for understanding how the doctrines, principles, and cultural dimensions of patent law facilitate and legitimize the theft and appropriation of indigenous peoples biocultural knowledge.[24] The relationship between patent law and indigenous peoples knowledge is inherently predatory and harmful to the interests, worldviews, and self-determination of the Third World.[25]