

## **PATENT ON BIOLOGICAL RESOURCES: ANTITHETICAL TO RULE OF SUSTAINABLE MANAGEMENT**

The 3 key ingredients of this concept are:

- ❖ Sustainable Management
- ❖ Patents
- ❖ Biodiversity

This paper seeks to establish the relationship between these ingredients and bring out the latent lacuna in the present circumstances and show how the co-existence of these ingredients is posing a threat for future times to come.

Sustainable management includes maintaining the resources as it is, productivity, diversity, and integrity for both current and future human needs.<sup>1</sup> This broad definition tells us that the substance of sustainable management lies in making sure that the diversity of the various resources, biological or living or any such other resource to which the principles of sustainable management would apply, remains intact and does not diminish over time. We have to make sure that our future generations must not be deprived of the vast bio-diversity and should be able to enjoy its benefits, if not better, then at least as much as us.

Patents are silent weapons. They initiate the urge to create, but the other side of the coin narrates the story of the evolving destruction. The creation is that of newer and better products and processes. The destruction is that of the existing resources, their form and nature. This destruction is also taking place when it comes to bio-diversity. Patents are being obtained on various plant varieties and other such microorganisms. Such patented products and processes as a result of being harnessed are being commercialized and the masses are brainwashed with the in-numerable advantages of producing that 'one' patented product, to be able to reap its benefits. This behavior is giving rise to production of only one product or process at the stake of the diminishing biodiversity.

Here, considering the example of forests in the light of sustainable management, we must appreciate the fact that, although we need productive forests, forest diversity is also important. Diverse forests are less susceptible to disease. Genetic variation not only strengthens a tree species, but it also increases the variety and health of other flora and fauna. Biological diversity in forests is the key to having stable forest ecosystems.<sup>2</sup>

Considering this example, we can understand that though rise in economy and the wealth of nations is desirable, yet such growth at the cost of the bio-diversity can have disastrous impacts in the long run. All the wealth of the world put together would not make it possible for the extinct bio-diversity to reappear; it would only feed the nation. The benefits that we are able to derive of this bio-diversity would not be available to the future generations as options.

The key to obtaining patents is to harness one's brainchild and make money of it. This can be done even if one creates a better way of doing a certain work or obtains a better

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<sup>1</sup><<http://www.w3.org/TR/REC-html40>> *Management starts with planning: How are forests managed?*, as visited on 2<sup>nd</sup> September, 2005

<sup>2</sup> Supra note 1

product in totality. What we need to identify here is the product or such product. These products and processes have left nothing to spare and a very interesting subject matter that comes into its ambit, is "life".

In earlier times, where one used to harvest nature's abundance, and profited from the diverse functions of living beings in their productive activities, now it is no longer a question of harvesting the gifts of nature, or profiting from the natural processes and functions of living beings, the objective sought now is to "design" in the laboratory living beings with completely new traits. The key now is to make a collage by oneself, cut color pictures into little bits in order to compose a new image more to its liking. Modern biotechnology is making a similar collage. It is taking apart living beings into simple genetic fragments and is recombining it in a test tube in order to recreate life forms with new functions, more suited to industrial requirements.

Transnational capital has chosen the most efficient solution for its dominance pretensions, claiming patent rights over the biological material that industry proclaims it has invented in its laboratories. The mere description of the chemical composition or a function attached to a bit of genetic material is enough in order to claim inventor's rights and exclusive exploitation monopoly over future applications and over all living organisms carrying the "new" genetic trait. Patents grant exclusive -and excluding- exploitation privileges, and in practice result in the creation of absolute monopolies, that transnational industry uses to prevent the development of potential competitors. Furthermore, in the case of patents on life forms the rights granted to its holder also cover subsequent generations of the organism subject to patent claims, thereby allowing for the appropriation not only of biological material, but also of the reproductive capacity of life.<sup>3</sup>

In the US a large number of patents on plants, animals and human biological and genetic material have already been granted. Patent claims sometimes are so wide that they cover entire plant species.

Patents are an ideal formula for legitimizing large-scale bio-piracy. Transnational capital preaches free access to the genetic wealth of the Third World, heritage of humankind, while it claims exclusive exploitation rights over its "inventions". The gold seekers of yesterday have presently engaged in a crusade for safeguarding biological diversity, and teams of experts comb wetlands, forestlands and remote virgin areas in search of the precious biological material that is beginning to appear as the key to future big business. The protection of Nature enclaves and the catalogue of rare species have acquired a new dimension. A high percentage of biodiversity, that is the amazing variety of life forms, can be found in the tropical and subtropical areas. It is estimated that some 4/5ths of the biological wealth of the earth is found in the regions of the so-called Third World. However, the patent system only acknowledges the rights and knowledge of impeccable white robed lab researchers supported by an army of lawyers, marginalizing the peoples who have improved, tendered, and inherited this collective wealth.

Intellectual property rights are alien to indigenous peoples and local farming communities. For us biodiversity and indigenous knowledge are inseparable. They are a collective, inalienable, and integral part of our cultures in all ways: at the spiritual,

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<sup>3</sup> <<http://www.eco.utexas.edu/faculty/Cleaver/wk5patent.html>>, *Patenting life*, as visited on 2<sup>nd</sup> September, 2005

cultural, intellectual, territorial, scientific and economic levels. Indigenous and local community's management of biodiversity and indigenous knowledge systems have been inherently sustainable, and are essential not only to the survival of indigenous peoples and local community's traditional livelihood systems but to the world economy and humanity at large. Thus, one would find a large number of people and groups, etc. who are totally opposed to intellectual property rights on life forms and processes that would never serve the interest of indigenous and local communities.

The whole question of the Farmers Rights is currently being renegotiated within the context of the International Undertaking on Plant Genetic Resources, which may become a protocol to the Convention on Biological Diversity. Additionally, indigenous peoples are in a worldwide consultation process with farmers groups to seek commonalities in defining appropriate rights and strategies for empowering our biodiversity management systems.

About 45% of the world economy is based on biotechnology. 70% of the world population depends directly on farming for their subsistence. More than 90% of the world biodiversity is sheltered in tropical and subtropical regions in the South. The genetic diversity of plants, animals and micro-organisms that live and grow in the forests, the fields and the wetlands of the South in particular, are strategic "raw material" for the development of new agricultural, pharmaceutical and industrial products. Transnational companies or government institutions in the North own 95% of the biotech patents. Northern corporations and institutions hold 99% of the patents and plant breeder's rights. These essential facts cannot be ignored. These state the stake of the biodiversity in the hands of a powerful few.

Other examples that can be taken to explain the state of diminishing bio-diversity and reasons for concern can be seen in honeybees, forests, genetically modified crops, etc, all of which are dealt with in this paper.

#### GM Crops and Monoculture:

The first and foremost thing which arises is to understand the concept of GM (genetically Modified) crops. Genetically Modified Crops are foods that have had a gene extracted from a living thing, which has been placed into a different food by a scientist. This creates plants that Nature never could.

A trend has been noted wherein we find that increased safeguarding of genetically modified plants through intellectual property rights has reduced access to new technology and increased costs for the farmer. In view of this fact, the task force appointed by the Danish Board of technology has recommended that the process of ensuring developing countries access to genetically modified crops and gene technology methods through such initiatives as less stringent transition schemes for the introduction of intellectual property rights in the plant technology area, special agreements with patent-holding agribusiness companies and increased public research, the results of which are made available to all, be supported.<sup>4</sup>

The term "biotechnology" encompasses all the techniques that use organisms, or parts of organisms, to produce or alter a product, or that develop microorganisms for specific

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<sup>4</sup> Genetically modified crops in developing countries – challenges for the development aid, November, 2003

purposes. By far the most prominent example of biotechnology in agriculture is genetically modified crops. GM crops contain genes that are artificially inserted instead of the plants' acquiring them through sexual means. The *transgene* (artificially inserted gene) may come from a completely different species. Bt corn and Bt cotton, for example, contain genes from different subspecies of a soil bacterium *Bacillus thuringiensis* (Bt) that give plants the ability to manufacture their own pesticides. Depending on where and for what purpose the plant is grown, desirable genes may provide features such as higher yield or improved quality; pest or disease resistance (as with Bt crops); tolerance to heat, cold, or drought; or enhanced nutritional content—all desirable agricultural traits for farmers and consumers in the developing world.<sup>5</sup>

In the case of honeybees, wherein we find a trend of artificially creating atmospheres for a particular few varieties, we find that, pesticides and monoculture have been major factors in the decline of honeybee populations. In addition to increase in farm productivity and income, participatory technology development system ensures bio-diversity, sustainable habitats and environments by pollinating not only cultivated crops, but also wild soil-holding and soil enriching plants in uncultivated areas.<sup>6</sup> Here, when we say monoculture, we imply breeding of only one type or variety of honeybees rather than taking a diverse approach. Here, the driving force for such an action is the harvest or the farm productivity. Different varieties of honeybees together would produce much less than a large number of the same variety of honeybees put together at one place would.

Again, citing the example of genetically modified crops, the situation can be identified as follows. On the one hand it is important to ensure that good agricultural results are not threatened by the uncontrolled introduction and utilization of genetically modified crops already available on the market, and, on the other, it is only natural to examine whether certain genetically modified crops might assist developing countries in ensuring sustainable agricultural production and food supply in the future. Here, we must also keep in mind the fact that, patents influence development, and this may cause developing countries major legal and economic problems when it comes to the use and development of genetically modified crops. The consequences of introducing genetically modified crops are uncertain. No one knows for certain what their impact will be on the environment, nutrition and biodiversity.

In order to be able to understand the danger and threat of the genetically modified plants and the impact of harnessing the patents upon these GM crops, we take the example of Bt cotton. This crop presents significant ecological concerns in Uganda, given its rich diversity of cotton varieties. The same concerns also exist in Zimbabwe and Southern Africa where there are indigenous cotton varieties. What we need to understand here is that though Bt cotton may provide a small amount of relief to small farmers in the near term, but it threatens to make matters worse in the end. Rather than a technology fix, small farmers in South Africa and other African countries need the support of rural development strategies that give farming communities control over their own resources and build local knowledge and technology systems. Farmers must be able to choose to avoid a cycle of debt and dependency. Bt cotton, however, encourages farmers to 'farm by formula' by applying chemical fertilizers and pesticides when planting single seed

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<sup>5</sup> Felicia Wu & William P. Butz, *The Future of Genetically Modified Crops*, Rand-Initiated Research

<sup>6</sup> **Nasreen Muzaffar**, *Managing bio-diversity in agricultural ecosystems through sustainable management of insect pollinators by rural communities*, Honeybee Research Institute National Agricultural Research Center, Islamabad, Pakistan.

varieties that have not yet been selected for local conditions and where pesticide application is a prerequisite. In the short term pesticide use may be reduced, but agronomic and economic dependence remains. Alternative strategies that rely to a greater extent on locally available inputs and that provide farmers with the tools to analyze what is happening in their fields, to adopt strategies to make appropriate variations in their practices, to understand when pests threaten economic loss and to take preventive measures to improve soil by the addition of organic matter have proven effective. Farmers involved in organic cotton projects in Senegal and Tanzania, for instance, produced equal yields to those achieved with conventional production without using costly inputs. But, to make this step to sustainable agriculture, farming communities need the socio-economic conditions that will allow them to manage their crops effectively. The solution is ultimately political, not technological.<sup>7</sup>

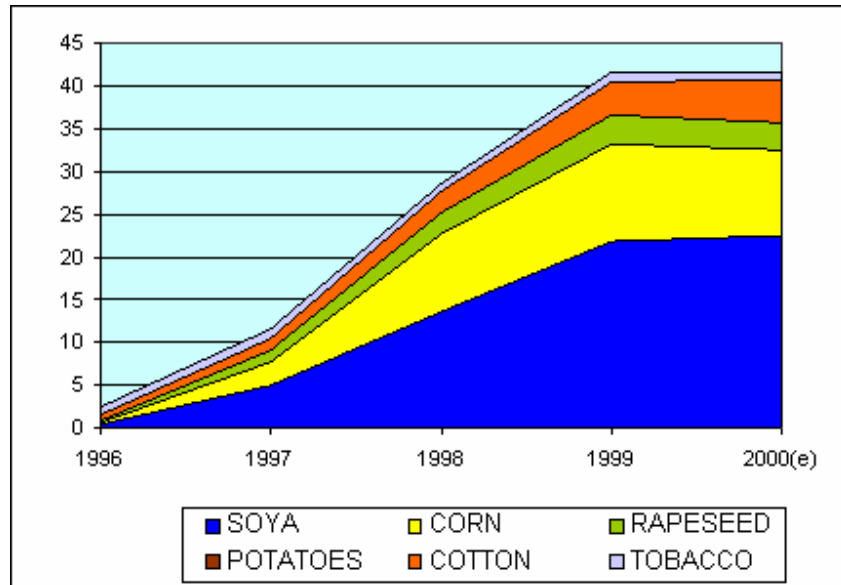
Monoculture:

The basic concept which is to be conveyed through this paper is how the monoculture will effect the sustainable management. As has already stated above the sustainable management is use of resources is such a manner to that it exists *in situ* for the generations to come. The things which exist right now should be there for the generations to come. What is patent on the GM crops is doing is quite clear. They lead to the innovations of GM so that there are more economical exploitations. Patent on process and product is one reason why there is widespread innovation and the person who is holding the patent will try to spread his innovation to all spears of the world. The genetically modified crops are very well developed and have overcome the short coming of the natural plant. The farmers would obviously try to achieve better growth and lesser amount of the investment. What in effect will happen is that there will be genetically modified crops replacing all the natural crops which are presently giving diversity. The spreading of the GM crops in large areas is quite evident from the Table 1 & Graph 1below. The way in which the GM crops are removing the natural grown crops is a matter of great concern and antithetical to the rule of Sustainable Management.

Mio ha	1996	1997	1998	1999	1999 in %
<b>USA</b>	1.45	7.16	20.83	28.64	69.1%
<b>ARGENTINA</b>	0.05	1.47	3.53	5.81	14.0%
<b>CANADA</b>	0.11	1.68	2.75	4.01	9.7%
<b>CHINA</b>	1.00	1.00	1.10	1.30	3.1%
<b>BRAZIL</b>	0.00	0.00	0.00	1.18	2.8%
<b>AUSTRALIA</b>	0.00	0.20	0.30	0.30	0.7%
<b>SOUTH AFR</b>	0.000	0.000	0.06	0.18	0.4%
<b>MEXICO</b>	0.000	0.000	0.05	0.05	0.12%
<b>EUROPE</b>	0.000	0.000	0.002	0.01	0.03%
SPAIN	0.000	0.000	0.000	0.01	0.02%
FRANCE	0.000	0.000	0.002	0.000	0.0%
PORTUGAL	0.000	0.000	0.000	0.001	0.0%
ROMANIA	0.000	0.000	0.000	0.002	0.0%
UKRAINE	0.000	0.000	0.000	0.001	0.0%
<b>TOTAL</b>	<b>2.601</b>	<b>11.510</b>	<b>28.623</b>	<b>41.480</b>	100.0%

**Table 1 Development of GM area by country**

<sup>7</sup> Devlin Kuyek, Genetically Modified Crops in African Agriculture: Implications for Small Farmers, August 2002



**Graph 1 Development of GM Area**

It is a natural phenomenon that a person is driven by the economic benefits which will accrue to him out of the work he is doing. The agriculturist works to grow the maximum with having to invest the minimum. GM crops will definitely satisfy both these conditions and thus will replace the natural varied variety which is grown right now. When there will be only one kind of a particular crop (genetically modified one) they will be grown for years and generations. Then in coming generations the varied variety which existed will be lost and the future coming generations will not even know that there was such variety of crops which existed at one point of time. This is what is to be avoided. We are blinded with the amount of short term benefits which are accruing to us by the plantations but are not able to see the ill effect which is there to come. The rule of sustainable management is grossly violated in the present manner and something should be done so that the varied plants and crops are not lost and replaced by the genetically modified ones.

Abhinav Shrivastava

Ishita Bhattacharya

National Law University, Jodhpur  
India  
Reg. code -72