

**CUTS Centre for  
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**Discussion Paper**

# FARMERS' RIGHTS: LESSONS FOR POLICY MAKERS IN SOUTH ASIAN DEVELOPING COUNTRIES



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This study has been researched and compiled by Joseph Savirimuthu of the University of Liverpool, UK. The opinions expressed in the paper, and any errors of fact or interpretation or omission are the responsibility of the author, and do not reflect the agreed policy positions of the publishers.

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## **Executive Summary**

The study focuses on the relationship between Trade Related Aspects of Intellectual Property Rights (TRIPs) and its impact on farmers' rights in South Asian developing countries. The issue of farmers' rights and their livelihood deserves special attention for these economies considering high employment potential and GDP contribution of the sector. The aim of the study is to evoke the need for clarifying the relationships between TRIPs, Convention on Biological Diversity (CBD) and International Treaty on Plant Genetic Resources for Food and Agriculture (PGRFA). The study emphasises that with creative interpretation of these agreements, South Asian developing countries can fulfil their obligations under TRIPs whilst resolving the key socio-cultural and ecological objectives.

The World Trade Organisation (WTO) agreement on TRIPs defines the types of inventions that have to be eligible for patent protection and those which can be exempt. Article 27.3(b) provides "protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof." Traversing through the pages of the study, relevance and reference of this article to farmers' rights will be found from time to time.

The study gives an overview of the relationship between agriculture, industrial policy and intellectual property rights (IPRs) and emphasises that the modalities of the market and property rights best maximise the aggregate social and economic welfare of communities. Special reference is given to origin of Biotechnology Patents with supporting statistical data. The paper discusses adverse consequence of capital-intensive method of farming and indiscriminate usage of chemical and pesticides as pursued by industrial economies on the developing nations while implementing TRIPs. The study also describes some of the key international norms and rules that apply to plant variety protection and breeders' rights.

There is elaborate discussion on the concept of Farmers' Rights and analysis of the disagreement on legally protecting the interests of farmers. It has been emphasised that the protection of farmers' rights is of particular importance to developing countries. TRIPs now obligates Member States to award patents for agro-chemical and biotechnology inventions. In addition to this, Member States have to establish effective systems of protection for plant breeder's rights.

The three systems of protection that Member States can potentially introduce to ensure TRIPs compliance: patent rights, a sui generis system or a combination thereof, have been discussed threadbare with mention of the provisions under Article 27:1. It has been mentioned that a number of Organisation for Economic Cooperation and Development (OECD) countries, including the US adopt a generous interpretation of the patent system to protect plants and plant varieties. But this does not favour South Asian developing countries where relative lack of skilled human resources, institutional infrastructures with predominant small farm holdings make the adoption of OECD industrial policies counterproductive. OECD market structure and policies do not fulfil the social, cultural and environmental objectives of the developing nations.

Articles in TRIPs most relevant to Farmer's Rights have also been reviewed. Some specific case studies like Turmeric, Neem, Hoodia Cactus (found in Kalahari Desert in southern Africa) have been made to analyse the relationship between IPRs, Traditional Knowledge and Genetic Resources.

Guiding principles for any sui generis legislation of TRIPs alongwith a detailed check-list of the progress of sui generis legislation in South Asian developing countries are furnished in the paper. An overall review of Doha Declaration on the subject is presented mentioning relevant Articles of the Declaration. The Study paper ended with the mentioning that a separate Ministerial Declaration will be needed to clearly articulate the interface between TRIPs and other international conventions. During the interim a hybrid of measures along the lines adopted by India, in the form of the Patents (Second Amendment) Act 2000, the Protection of Plant Varieties and Farmers' Right Act 2000, and the Biodiversity Bill 2000 provide the best way forward.

## Introduction

***The kingpin of the analysis relates to whether developing countries in South Asia fulfil their obligations under TRIPs and at the same time can resolve the key concerns regarding the impact of this Agreement for farmers' rights.***

***The paper lays a foundation for the need to evolve a separate declaration along the lines of Doha Declaration on Public Health.***

***The study lays the foundation for further research into the question of whether the current impasse in the review of Article 27:3 (b) warrants a Ministerial Declaration specifying a clear relationship between TRIPs and other International Agreements.***

This study examines the question: Can developing countries in South Asia fulfil their obligations under Trade Related Aspects of Intellectual Property Rights (TRIPs) whilst resolving the key concerns regarding the impact of this Agreement for farmers' rights. This paper underlines the emerging consensus that implementation of Article 27:3 (b) need not necessarily run counter to socio-cultural values of policymakers and agricultural smallholdings in developing countries. The paper lays a foundation for the need to evolve a separate declaration along the lines of Doha Declaration on Public Health with incontrovertible logic that the values inherent in the International Convention for the Protection of New Varieties (UPOV) 1978, Convention on Biological Diversity (CBD) and GUI are already embedded within the constitutional framework of TRIPs.

The study will proceed in the following manner. It begins by highlighting the interface between agriculture, industrial policy of OECD countries and intellectual property rights (IPRs). In this section an overview will be provided of the framework that presently exists for coordinating national approaches to the protection of plant varieties and plant breeders' rights.

Secondly, the study examines the TRIPs Agreement and its significance for plant variety, breeders' rights and farmers' rights. A brief description will be provided as to the possible options made available under TRIPs. The paper accepts the consensus of academic commentators and the Commission for Intellectual Property Rights (UK) that the needs of South Asian developing countries are best facilitated by adopting a *sui generis* regime rather than enacting patent legislation as an instrument to fulfil the obligations under Article 27. An extended consideration is given to Article 27:3 (b), in particular, the flexibilities permitted under this provision.

Thirdly, an overview will be provided of the *sui generis* property rights regimes in Pakistan, India, Bangladesh and Sri Lanka. An attempt will be made to highlight some of the flexibilities that exist in accommodating farmers' rights within Article 27:3(b).

The final section provides a brief commentary on the present review of Article 27:3(b) in the light of the Doha Declaration and the meetings in the TRIPs Council. The study concludes by underlining the built-in flexibilities inherent in Article 27:3(b). It also lays the foundation for further research into the question of whether the current impasse in the review of Article 27:3 (b) warrants a Ministerial Declaration specifying a clear relationship between TRIPs and other International Agreements in this sphere of policymaking.

## Overview: The Relationship between Agriculture, Industrial Policy and Intellectual Property Rights

*In place of traditional farming systems, governments in industrial economies initiated the process of new technical farming methods. To encourage private sector investment in innovative activities, IPRs and sui generis regimes were set in place.*

2.1 It is often emphasised that the modalities of the market and property rights best maximise the aggregate social and economic welfare of communities<sup>1</sup>. Governments in developed industrial countries point to the benefits of their market structures and industrial policies in responding to the problems of health, nutrition, safety and environment. This political and economic ideology has in large part been instrumental in the way the present agro-chemical and biotechnology activities, governing the food chain, are being structured<sup>2</sup>. The 'green revolution' which emerged during the 1960s in India, was the product of growing concerns about likely food shortages and population growth<sup>3</sup>.

OECD industrial countries, being the primary beneficiaries of the industrial revolution, reorientated their industrial policies and market structures to maximise the potential of the knowledge economy<sup>4</sup>. In place of traditional farming systems, governments in industrial economies initiated the process of new technical farming methods, with cultivation of new varieties of plants and seeds (eg. wheat, rice and maize), use of pesticides, chemicals for curbing disease and for weed control<sup>5</sup>. To encourage private sector investment in innovative activities, IPRs and *sui generis* regimes were set in place.

| Box-1: Origin of Biotechnology Patents |                         |                       |
|--|-------------------------|-----------------------|
| Country of Origin                      | Total per Country (No.) | Total per country (%) |
| United States                          | 5,775                   | 37.5                  |
| Japan                                  | 5,706                   | 37.1                  |
| EPO (European Patent Office) countries | 2,903                   | 18.9                  |
| Rest of Europe                         | 268                     | 1.7                   |
| Australia                              | 181                     | 1.2                   |
| Canada                                 | 94                      | 0.6                   |
| China                                  | 173                     | 1.1                   |
| Israel                                 | 70                      | 0.5                   |
| Republic of Korea                      | 119                     | 0.8                   |
| Other countries                        | 103                     | 0.7                   |
| Total                                  | 15,392                  | 100.0                 |

Source: CEFI (1997) cited in Carlos (2000)<sup>1</sup>

*There is, however, no answer to the adverse impact of modern technology based farming methods pursued by industrial economies on the developing economies.*

The outcome of these policies, when viewed in a global context, shows that developed economies have been better able to address problems in agriculture, nutrition, health and environment, compared to developing countries<sup>6</sup>. The effect of creating private property incentive systems has led to less public sector initiative in agricultural R&D. For example, in OECD countries, private investment in R&D is said to cover half the total R&D expenditure. Government support is directed only to the extent of providing research data to farmers<sup>7</sup>.

It is said that the US economy benefited from its investment of US\$134 million in international wheat and rice research aimed at developing countries by up to US\$14.7 billion. Governments in OECD industrial economies have directed public funding for supporting agribusiness and food processing. Investment by the private sector is reported to be growing and is estimated at being over US\$8 billion per annum in the United States.

*Mergers, acquisitions and strategic alliances have led to a vertical integration of the global agri-food production chain.*

2.2 There is, however, no answer to the adverse impact of modern technology<sup>9</sup> based farming methods pursued by industrial economies on the developing economies. Firstly, whilst technology was seen as benefiting all farmers, irrespective of the size of their holdings, developing countries argue that this reorientation of the traditional farming system has, in reality, benefited large transnational corporations<sup>10</sup>. The capital-intensive nature of R&D in the extraction of compounds in genetic material, propagation and molecular mapping, the emphasis in the business model towards wealth maximisation and the pace of technological advancements has led to a restructuring of the food supply chain<sup>11</sup>. Mergers, acquisitions and strategic alliances have led to a vertical integration of the global agri-food production chain.

Secondly, one of the benefits of the green revolution, namely, that there will be greater variety and consumer choice, is refuted<sup>12</sup>. Multinational corporations, who dominate the field of agro-biotechnology research,

**Box 2: Key Multinational Corporations with Patent Portfolio**

| Applicant                     | Country        | Number |
|-------------------------------|----------------|--------|
| Pioneer Hi-Bred International | United States  | 70     |
| Zeneca/ICI                    | United Kingdom | 50     |
| Monsanto Co                   | United States  | 28     |
| Sandoz                        | Switzerland    | 24     |
| Calgene                       | United States  | 23     |
| Holden's Foundation Seeds     | United States  | 23     |
| Max Planck Gesellschaft       | Germany        | 19     |
| Ciba-Geigy AG                 | Switzerland    | 17     |
| Hokko Chemical Industry       | Japan          | 16     |
| Dupont de Nemours             | United States  | 15     |
| Mitsui Toatsu Chemicals       | Japan          | 14     |
| Plant Genetic Systems         | Belgium        | 14     |
| Hoechst-Schering Agrevo       | Germany        | 13     |
| Japan Tobacco                 | Japan          | 12     |
| Mitsubishi                    | Japan          | 12     |
| Mogen International           | Netherlands    | 12     |

Source: CEFI (1997) cited in Carlos (2000)

***The property based model of appropriating information is counterproductive to the goals of conservation and benefit sharing of biological materials which are public goods.***

have begun to rely on the patent system and plant variety protection to entrench their competitive advantage and restrict the flow of information to the developing countries<sup>13</sup>.

Opponents of the modern agro-chemical and biotechnology practices argue that technocracy has led to a displacement of traditional practices which has so long maintained a balance in the ecosystem<sup>14</sup>. Global transnational corporations like Monsanto, Pioneer Hi-Bred, Zeneca and Syngenta are now provided with the property instruments and international agreements to maintain their strategic control over the use of information involving the extraction from plants and genetic resources (for producing new varieties of plants, seeds and products)<sup>15</sup>. Finally, it is argued that the property based model of appropriating information is counterproductive to the goals of conservation and benefit sharing of biological materials which are public goods<sup>16</sup>.

The remainder of this section will identify and describe some of the key international norms and rules that apply to plant variety protection and breeders' rights.

***The International Convention for the Protection of New Varieties 1991 (UPOV) is the most recent agreement outside TRIPs that attempts to coordinate the national rules on plant breeder's rights. The 1978 and 1991 UPOV Acts provide a sui generis form of intellectual property protection.***

2.2.1 The International Convention for the Protection of New Varieties 1991 (UPOV) is the most recent agreement outside TRIPs that attempts to coordinate the national rules on plant breeder's rights<sup>17</sup>. The aim of this Act is to provide commercial breeders with an incentive to undertake innovative research and investment in plant varieties. As of 5th December 2002, 52 countries have subscribed to the 1991 Act, most of whom are developed countries. The 1978 and 1991 Acts provide a *sui generis* form of intellectual property protection.

Eligibility for protection under the Acts requires registrants to adduce evidence showing that the new plant varieties are (1) distinct from existing, commonly known varieties, (2) sufficiently uniform, (3) stable, and (4) new, in the sense that they must not have been commercialised prior to certain dates (established by reference to the date of application for protection). Under the Acts, parties commit themselves to adhere to national treatment in the granting and protection of plant breeding rights. In other words, they must not discriminate between plant breeders on the basis of their nationality.

Article 6:1(a) extends protection to plant varieties, which have been discovered. The effect of creating an international agreement of this nature is that it embeds an agreed set of norms and rules governing protection of plant varieties between contracting parties from different countries. Articles 5-9 define the scope of the protection and reflects the industrial policies and market structures of OECD industrial countries. By acceding to the Acts, contracting parties undertake to provide national treatment to plant varieties registered in other member countries, subscribe to a uniform set of commercial rights which are legally justiciable, identify the varieties that are protected and prescribe the consequences accompanying infringements by third parties.

***The effect of creating an international agreement of this nature is that it embeds an agreed set of norms and rules governing protection of plant varieties between contracting parties from different countries.***

Both the 1978 and 1991 Acts provide a minimum threshold for compliance. The 1991 Act for example provides that the breeder's authorisation must be obtained with respect to the use of the propagating material of his/her protected variety for any of the following acts: (1) production or reproduction (multiplication), (2) conditioning for the purpose of propagation, (3) offering for sale, (4) selling or other marketing, (5) exporting, (6) importing, and (7) stocking for any of the purposes mentioned from 1-6 above. The Acts also provide specific exemptions for research purposes.

Even though the plant variety protection is qualitatively less onerous than the criteria for patentability, plant breeder's rights are given a monopoly right to appropriate information regarding the product or process of

propagation for a limited duration. The 1991 Act for example provides that the breeder's rights last for a period of twenty years. Vines and trees are given an additional five years. Many developing countries, including those from South Asian developing countries have resisted subscribing to the 1991 Act, even though the international treaty has been opened for signature since 1978. Instead, South Asian developing countries, for example, have enacted rules contained in the 1978 Act in their national legislation and adopted principles contained in other Conventions. This is explicable on the grounds that the 1991 Act seems to go some way to increasing the commercial rights of plant breeders in OECD industrial economies.

Four particular areas have been identified as giving policymakers in developing countries concerns about the likely implications of these governance shifts for the agricultural small holdings and food security policies.

First, it extends the 1978 Act to require signatories to extend property rights to all plant genera and species. Under this Act, contracting parties were required to extend protection only to specified genera or species of plant varieties and within an acceptable time frame<sup>18</sup>.

Second, the 1978 Act permits farmers specific privileges. One of such privileges includes the right of farmers to use seeds of the protected variety as propagating material for purposes other than for profit.<sup>19</sup> The present Act, however, extends the rights of plant breeders to all seed production from protected varieties. UPOV members retain limited discretion by permitting farmers to save part of the harvest for re-use as seed on the same tenement<sup>20</sup>.

Third, Article 5(3) of the 1978 Act introduced a breeder's exemption. Under the exemption, other breeders can use the protected genera or species to propagate or produce new varieties as well as market their derivatives<sup>21</sup>. The 1991 Act extends the breeder's protection in very limited circumstances to the harvested material of the variety. One way of illustrating this is to consider the likely outcome of a plant variety which has been taken from the country of origin to a non-Convention country to produce an end product and then exported to the country of its origin and sold. This situation was not covered by the 1978 Act<sup>22</sup>. However under the 1991 Act, in such circumstances the plant breeder in the country of origin can now expect to be remunerated.

Finally, products which are essentially derived from protected plant varieties under the 1991 Act require prior authorisation of the plant breeder. The 1978 Act did not extend any proprietary claims to plant breeders in the event of *de minimis* changes.

2.2.2 The Convention on Biological Diversity (CBD) which came into force in 1993 focuses on a different set of norms and values<sup>23</sup>. The provisions under the preamble emphasise the desire of contracting parties to promote policymaking which prioritises the conservation of biological diversity and its sustainable use. Such provisions also ensure the commitment that the eco-systems and the rich biological and genetic heritage are conserved and used in a sustainable manner for the benefit of present and future generations<sup>24</sup>. The concept of biological diversity embraces all species of plants, animals and micro-organisms. This also includes any relevant variations and the eco-systems within which they are said to exist. Its complex taxonomy can be seen in the multi-tiered hierarchy within which the concept can be approached: (i) species level; (ii) genetic level; and (iii) eco-system level<sup>25</sup>.

*The 1991 Act seems to go some way to increasing the commercial rights of plant breeders in OECD industrial economies.*

*The Convention on Biological Diversity (CBD) which came into force in 1993 ocuses on a different set of norms and values.*

*In contrast to the UPOV three objectives of CBD provides the impetus for policymaking. These are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.*

**Article 1 of the CBD provides that:**

“The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.”

*Of particular importance is the way the CBD attempts to harness the potential of technological innovation and scientific advances to inform policymaking with regard to the conservation of biological diversity.*

In contrast to the UPOV three objectives provides the impetus for policymaking. First, the conservation of biological diversity. Second, the sustainable use of its components. Finally, the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. In contrast to the goals of the UPOV, the CBD creates a presumptive rule that contracting parties exercise sovereign rights over the exploitation of knowledge and resources regarding genetic resources, funding and utilisation of relevant technologies. Of particular importance is the way the CBD attempts to harness the potential of technological innovation and scientific advances to inform policymaking with regard to the conservation of biological diversity<sup>26</sup>.

Article 7, for example, provides that the protection and enforcement of IPRs should contribute to the promotion of technological innovation and to the transfer of and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.

Article 8(j) provides that contracting parties use their best endeavours to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practices.

Article 15:5 of the CBD for example, permits access to genetic resources to be based on a reciprocal understanding of prior and informed consent of the Contract Parties. This idea of reciprocity does not however extend to agriculture, particularly to seed in gene banks collected prior to the CBD.

*The final regulatory framework related to plant varieties is the International Undertaking on Plant Genetic Resources. This is a non-legally binding instrument but has now been reenacted as the International Treaty on Plant Genetic Resources For Food and Agriculture (PGRFA).*

Under Article 16(1), contracting parties are said to recognise that technology includes biotechnology, and that both access to and transfer of technology among contracting parties are essential elements for the attainment of the objectives of the CBD. Contracting parties undertake, subject to the provisions of this Article to provide and/or facilitate access for and transfer to other contracting parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment. This process is to be facilitated through contract<sup>27</sup>.

*The immediate result of PGRFA is to provide a counterpoint to the property rights model in agro-chemical and biotechnology. It, however, falls short of suggesting the provisions in the Treaty which have taken precedence over the 1991 Act or TRIPs.*

2.2.3 The final regulatory framework related to plant varieties is the International Undertaking on Plant Genetic Resources, the product of initiative overseen by the FAO<sup>28</sup>. This is a non-legally binding instrument but has now been reenacted as the International Treaty on Plant Genetic Resources For Food and Agriculture (International Treaty)<sup>29</sup>. This Treaty is the culmination of the previous attempts by the International Undertaking and the CBD to increase awareness and financial support for conservation at a global level. The Treaty is supportive of farmers and their communities in all regions of the world with particular emphasis on the areas of origin and diversity of plant genetic resources, in the protection and conservation of these resources as also of the natural

### Box 3: Summary<sup>32</sup>

#### Reversing the Privatisation Trend: The International Treaty on Plant Genetic Resources for Food and Agriculture (PGRFA)

*What remains ambiguous is the relationship of PGRFA to TRIPs, whose provisions require IPR over plant varieties and other life forms.*

In 1992, the Convention on Biological Diversity affirmed national sovereignty over genetic resources. But the status of genetic resources collected before the treaty was left unresolved. Unlike biodiversity in the wild, a great deal of agricultural biodiversity has been collected and stored in public sector gene banks. In November 2001, following seven years of negotiations, the International Treaty on Plant Genetic Resources for Food and Agriculture (PGRFA), was adopted by the Conference of the UN Food and Agriculture Organisation (FAO). The treaty is an internationally-binding instrument, created specifically to deal with the treatment of PGRFA, in recognition of their critical concern for the poor and global food security. Of 118 countries, the United States and Japan were the only governments to withhold support by abstaining from the vote.

While the IT recognises the sovereign rights of countries over their PGRFA, it also notes their interdependence. It establishes, for signatories, a 'multilateral system' of mutual access to seeds and germplasm for much of the world's food supply, as well as to fair and equitable sharing of the benefits gained from their use. It also includes a provision to safeguard farmers' rights to use, exchange and sell farm-saved seed. The list of what genetic material would be covered by the treaty was hotly negotiated — some countries sought expanded access (particularly Northern countries such as the US and EU), and many in the South (such as Brazil), sought to shorten the list, to increase sovereign control. In the end, the IT covers 35 specific crops and 29 forages key to world food supplies. While all signatories gain access, analysts note that some of the more important gains accrue to poor people and poor countries with finite research and gene bank resources.

*Conflicts over patenting of treaty-covered material will possibly require dispute settlement through the WTO and the PGRFA itself. The PGRFA also confers new obligations on those who commercialise products developed from material covered by the treaty, to contribute towards a research fund.*

The PGRFA effectively exempts designated crops from patentability, by stipulating that those (researchers, farmers or companies e.g.) who receive genetic material from this multilateral system "shall not claim any intellectual property or other rights that limit the facilitated access to the PGRFA..." What remains ambiguous is the relationship of this treaty to TRIPs, whose provisions require IPR over plant varieties and other life forms. The preamble to the treaty clarifies that it does not intend to create a hierarchy between it and other international agreements, though international law normally provides precedence to the newer treaty. Conflicts over patenting of treaty-covered material will possibly require dispute settlement through the WTO and the PGRFA itself. The PGRFA also confers new obligations on those who commercialise products developed from material covered by the treaty, to contribute towards a research fund. The PGRFA will enter into force 90 days after ratification by 40 countries.

*Source: BRIDGES Trade BioRes, 2001; IATP, 2001; RAFI, 2001b*

biosphere. The attempt is also to promote greater equity in the sharing of benefits derived from the exploitation of plant genetic resources, through the use of technology and scientific methods<sup>30</sup>.

The preamble of the Treaty characterises the problems stemming from the commodification of plant genetic resources for food and agriculture which requires the cooperation of all countries. As part of the solution, contracting parties undertake, for example, to provide tangible solutions with regard to the conservation, exploration, collection, characterisation, evaluation and documentation of plant genetic resources for food and agriculture. The immediate result of the Treaty is to provide a counterpoint to the property rights model in agro-chemical and biotechnology. It, however, falls short of suggesting the provisions in the Treaty which have taken precedence over the 1991 Act or TRIPs<sup>31</sup>.

## Farmers' Rights, Plant Varieties and TRIPs

3.1 Before examining the consequences of implementing TRIPs for farmers' rights in South Asian developing countries a brief description of the concept may be necessary.

*The concept of farmer's rights is not susceptible to being defined in a precise manner. General consensus that farmers "add value" by preserving the germplasm, which provides a valuable resource for producers of range of plant varieties.*

3.1.1 The concept of farmer's rights is not susceptible to being defined in a precise manner. There is a general consensus that farmers "add value" by preserving the germplasm, which provides a valuable resource for producers of range of plant varieties. The FAO was particularly instrumental in reflecting the views of developing countries highlighting the contributions by farmers and their communities to the conservation of plant genetic and biological materials. This contribution includes methods and techniques of agro-ecological adaptation and utilisation of knowledge to enhance the resistance and quality of the plants<sup>33</sup>.

3.1.2 The underlying premise that farmers should have legally protectible interests stem from recognition of the valuable contribution they make to both the conservation and development of plant genetic resources<sup>34</sup>. The disagreement lies in providing content to the generally accepted view that farmers contribute to the conservation of germplasm and biological

### Box 4: Article 9 of PGRFA

9.1 The Contracting Parties recognise the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.

9.2 The Contracting Parties agree that the responsibility for realising Farmers' Rights, as they relate to plant genetic resources for food and agriculture, rests with national governments. In accordance with their needs and priorities, each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights, including:

- (a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture;
- (b) the right to equitably participate in sharing benefits arising from the utilisation of plant genetic resources for food and agriculture; and
- (c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

9.3 Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/ propagating material, subject to national law and as appropriate.

Source: CIPR, 2002

*The disagreement lies in providing content to the generally accepted view that farmers contribute to the conservation of germplasm and biological material which enables the private sector to utilise them for R&D.*

material which enables the private sector to utilise them for R&D<sup>35</sup>. Here the concept of farmer's rights is seen as being imprecise and permits no clearly identifiable boundaries since the "contributions" span a continuum of generations<sup>36</sup>. These concerns, however, did not lead to a cessation in demands for the FAO to clarify the status of farmers' contributions in view of the fact that plant breeders had established their rights with property frameworks set in place by OECD industrial economies. In a resolution passed by the FAO the concept of farmer's rights was said to embody<sup>37</sup>:

"[R]ights arising from the past, present and future contribution of farmers in conserving, improving and making available Plant Genetic Resources, particularly those in the centres of origin/diversity. These rights are vested in the International Community, as trustees for present and future generations of farmers, for the purpose of ensuring full benefits of farmers and supporting the continuation of their contributions...."

This statement is now underscored by Article 9 of the International Treaty.

3.1.3 The protection of farmers' rights is of particular importance to developing countries. Agriculture, for example, constitutes one of the principal trade and employment sectors in South Asia. The combined GDPs of the developing countries are about 29 percent and absorbs about 300 million people into the workforce. This is a massive 60 percent of the workforce. That said, there are some variations. In Nepal, agriculture accounts for 44 percent of the GDP and 94 percent of employment whilst in Sri Lanka, it is 24 percent and 94 percent respectively<sup>38</sup>.

*The protection of farmers' rights is of particular importance to developing countries. Agriculture constitutes one of the principal trade and employment sectors in South Asia.*

When assessing the potential impact of TRIPs it should be borne in mind that the general trend in the reduction of prices for primary export commodities like rice, wheat, jute etc. has obvious medium term and long-term ramifications in relation to balance of payments<sup>39</sup>. The picture is also made more complex since it is unclear as to how best national governments should externalise the concept through regulatory and institutional frameworks which converges with the needs and expectations of farmers and communities<sup>40</sup>. An additional challenge for governments in South Asian developing region is to accommodate within this framework the traditional and indigenous knowledge, innovations and techniques that have been inherited from previous generations.

The South Asian region also plays host to a wide range of plant and genera. India can be taken as an example. It is one of the twelve megabiodiversity countries of the world. It is reputed to account for at least eight per cent of the recorded species of the world<sup>41</sup>. The Botanical Survey of India and the Zoological Survey of India report the existence of over 47,000 species of plants and 81,000 species of animals respectively<sup>42</sup>. This is regarded as being a conservative estimate when contrasted with the biological diversity that is expected to be present in the Himalayan region and A&N Islands<sup>43</sup>.

*An additional challenge for governments in South Asian developing region is to accommodate within the institutional framework the traditional and indigenous knowledge, innovations and techniques that have been inherited from previous generations.*

3.2 The idea of knowledge associated with traditional and indigenous knowledge and biodiversity as being public goods must however be considered in the light of the TRIPs Agreement. The property based regime introduced by TRIPs does not contain any explicit vocabulary which accommodates the concept of farmer's rights. This point is underscored by the World Bank, when it observed that<sup>44</sup>:

'Because the knowledge is a collective good, and therefore of uncertain ownership, it has proven difficult to apply standard intellectual property tools to its protection. Many such products and designs have found their way into international commerce under protection in foreign countries, however, as firms abroad copy and register them.'

*The idea of knowledge associated with traditional and indigenous knowledge and biodiversity as being public goods need to be considered in the light of the TRIPs Agreement.*

*There are three systems of protection that Member States can potentially introduce to ensure TRIPs compliance: patent rights, a sui generis system or a combination thereof.*

3.3 To compound the problems faced by developing countries there is uncertainty whether the attempts to include norms from the International Treaty, the 1978 Act and the CBD fall short of the obligations under Article 27:1

3.4 Developing countries were required under Article 65:2 TRIPs to implement the provisions by the end of December 2000. Least developed countries like Bangladesh and Sri Lanka have given special provision of extended time until 1 January 2006. With regard to agriculture, TRIPs now obligates Member States to award patents for agro-chemical and biotechnology inventions. In addition to this, Member States have to establish effective systems of protection for plant breeder's rights.<sup>45</sup> Unlike the 1978 Act and other non-legally binding Agreements, TRIPs not only entrenches norms which emphasise the rights to appropriate public goods but it also prescribes mechanisms for monitoring, surveillance and dispute resolution<sup>46</sup>. That said, it is at present unclear what policy prescriptions are likely to emerge from the Article 27:3 (b) review, particularly in the light of the Doha Round. This issue will be considered towards the end of the study. There are three systems of protection that Member States can potentially introduce to ensure TRIPs compliance: patent rights, a *sui generis* system or a combination thereof. Despite the relatively short history of the Agreement, it is clear that the WTO dispute settlement machinery is increasingly likely to play an important role in defining the governance structure for plant varieties<sup>47</sup>.

#### **Options: Patents**

3.5 The patent is held up as a useful medium for operationalising strategic economic and social policies<sup>48</sup>. The trade-off for the grant of a statutory monopoly is based on the premise that market incentives in the form of property protection systems will encourage the private sector to invest in ideas and knowledge, which increase the aggregate social and economic welfare of society.

#### **Box 5: Patenting of genetically modified plants and seeds from developing countries**

In Asia, traditionally fragrant or aromatic rices are grown in India (Basmati) and Thailand (jasmine or *khao hom mali*) where varieties have been developed over the years by local farming communities. An American company, RiceTec, planned to patent a rice variety 'Jasmati' which they said was a hybrid of American grain and Thai jasmine rice.

CIDSE representatives in Vietnam report that local rice varieties have been developed over many years and there is a strong tradition of exchanging seeds. Mrs. Nguyen Thanh Hien from Hanoi University is a long time partner of CIDSE which has supported her work in developing the technology to produce bio-fertiliser on a large scale.

This technology allows for isolating nitrogen-fixing bacteria from soils and then developing a simple medium (peat and rice bran) to mix the bacteria in order to make field applications easier. Ms Nguyen is now trying to repeat her first success with phosphate-soluble bacteria. She tries to keep costs for farmers as low as possible and invests considerable time and effort in training them to use these bio-fertilisers.

There is a very real danger that TNCs will build on the work she has done in the interest of the local farmers by taking a sample of her bacteria, slightly modifying the genetic content and applying for a patent. This is not in the interests of the local farmers and should be opposed.

*Source: CIDSE, 2002*

**General belief is that patents are trite laws that are not available to 'discoveries'.**

3.5.1 Art 27:1 stipulates that systems of property protection must be available for 'any inventions, whether products or processes, in all fields of technology'. There is general consensus that patent systems in developed countries, which play host to the leading biotechnology and agro-chemical industries, have paid less heed to this distinction<sup>49</sup>. It is trite law that patents are not available to 'discoveries'. Consequently, an extraction of DNA sequences, plasmids, seeds, genera or species of genetic material existing in nature will not necessarily be disqualified from the requirements of patentability<sup>50</sup>. Plant varieties in corn for example have been the subject of a number of patent applications<sup>51</sup>. The variations in standard setting between developed and developing countries is underscored by the TRIPs Agreement, which does not prescribe the criteria for a product or process being regarded as an 'invention'. Member States (apart from those set out in paragraphs 2 and 3) are required to provide protection only if the invention is shown to be 'new', 'involve an inventive step' and be 'capable of industrial application'. One concern raised by developing countries is that the boundaries between an 'invention' and 'discovery' have now been blurred with regard to plant varieties<sup>52</sup>.

**One concern raised by developing countries is that the boundaries between an 'invention' and 'discovery' have now been blurred with regard to plant varieties.**

| <b>Box 6: Summary</b>   |
|---|
| <ol style="list-style-type: none"> <li>1. A number of OECD industrial countries, including the US adopt a generous interpretation of the patent system to protect plants and plant varieties.</li> <li>2. This is not a course that favours South Asian developing countries, in particular Pakistan, Sri Lanka, Nepal and Bangladesh. The relative lack of skilled human and institutional infrastructures and the preponderance of small farm holdings in these countries make the adoption of OECD market structures and industrial policies counterproductive to the attainment of social, cultural and environmental objectives.</li> <li>4. Patent legislation must clearly adopt a broad notion of 'prior art' to include traditional and indigenous knowledge (both formal and informal) and clear rules on disclosure of material. Additional provisions include the stringent provisions requiring full disclosure of relevant information with regard to the origins and source of biological material.</li> </ol> |

3.5.2 Where the subject matter of a patent is a product, unauthorised third parties are not legally entitled to engage in the following acts:

- a. making
- b. using
- c. offering for sale
- d. selling
- e. importing the product for above purposes

3.5.3 Where the subject matter of a patent is a process, the following acts cannot be engaged in without prior authorisation from the owner:

- a. using
- b. offering for sale
- c. selling
- d. importing the product obtained directly by that process for the above purposes

**Despite the relatively short history of the TRIPs Agreement, it is clear that the WTO dispute settlement machinery is increasingly likely to play an important role in defining the governance structure for plant varieties.**

Despite the relatively short history of the Agreement, it is clear that the WTO dispute settlement machinery is increasingly likely to play an important role in defining the governance structure for plant varieties<sup>53</sup>.

### **Option: The *Sui Generis* Regime**

3.6 The effect of excluding patent protection to plants and plant varieties is that developing countries must adopt either a *sui generis*

| <b>Box 7: Articles in TRIPs most relevant to Farmer's Rights</b><br><i>(Note: A number of articles contain further specific conditions, exceptions and exemptions which are spelt out in TRIPs or other referenced agreements.)</i> |   |
|---|---|
| <b>Nondiscrimination</b><br><i>(Articles 3, 4, and 27)</i>  | <p>"National Treatment...Each Member shall accord to the nationals of other Members treatment no less favourable than that it accords to its own nationals with regard to the protection of intellectual property..."</p> <p>"Most-Favoured-Nation Treatment...With regard to the protection of intellectual property, any advantage, favour, privilege or immunity granted by a Member to the nationals of any other country shall be accorded immediately and unconditionally to the nationals of all other Members..."</p> <p>"Patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced."</p> |
| <b>Parallel importation</b><br><i>("exhaustion of patent rights") (Article 6)</i>   | <p>"Exhaustion...For the purposes of dispute settlement under this Agreement, subject to the provisions of Articles 3 (National Treatment) and 4 (Most-Favoured-Nation Treatment), nothing in this Agreement shall be used to address the issue of the exhaustion of intellectual property rights."</p>   |
| <b>Objectives of TRIPs</b><br><i>(Article 7)</i>  | <p>"Objectives...The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations."</p>  |
| <b>Protection of nutrition and promoting the public interest in biodiversity and the environment</b><br><i>(Article 8)</i>  | <p>"Principles...Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement."</p>   |
| <b>Process and product patents</b><br><i>(Article 27)</i>   | <p>"...patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application."</p> <p>"...patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced."</p> <p>"...Members shall provide for the protection of plant varieties either by patents or by an effective <i>sui generis</i> system or combination thereof."</p>   |
| <b>Subject matter which may be excluded from patentability</b><br><i>[Article 27:3 (b)]</i>   | <p>"Members may also exclude from patentability inventions...necessary to protect <i>ordre public</i> or morality, including protection of human, animal or plant life or health..."</p> <p>"Members may also exclude from patentability: plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes."</p>   |
| <b>Limited exceptions, including "Bolar" provisions</b><br><i>(Article 30)</i>  | <p>"Exceptions to Rights Conferred...Members may provide limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties."</p>  |
| <b>Compulsory licensing</b><br><i>(Article 31)</i>  | <p>"Where the law of a Member allows for other use of the subject matter of a patent without the authorisation of the right holder, including use by the government or third parties authorised by the government, the following provisions shall be respected:</p> <p>authorisation ... shall be considered on its individual merits;</p> <p>such use may only be permitted if, prior to such use, the proposed user has made effort to obtain authorisation from the right holder on reasonable commercial terms and conditions and that such effort have not been successful with a reasonable period of time. This requirement may be waived</p>  |

|  |   |
|--|---|
|  | <p>... in the case of a national emergency or other circumstances of extreme urgency or in cases of public non-commercial [governmental] use.... [Notice is required.]</p> <p>the scope and duration of such use shall be limited to the purpose for which it was authorised ...;</p> <p>such use shall be non-exclusive;</p> <p>such use shall be non-assignable ...;</p> <p>any such use shall be authorised predominantly for the supply of the domestic market ...;</p> <p>authorization for such use shall be liable, subject to adequate protection of the legitimate interests of the persons so authorised, to be terminated if and when the circumstances which led to it cease to exist and are unlikely to recur [with provisions for review] ...;</p> <p>the right holder shall be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization;</p> <p>the legal validity of any decision relating to the authorisation of such use shall be subject to judicial review or other independent review by a distinct higher authority in that Member;</p> <p>any decision relating to the remuneration provided in respect of such use shall be subject to judicial review or other independent review ...;</p> <p>Members are not obligated to apply ... subparagraphs (b) and (f) where such use is permitted to remedy a practice determined after judicial or administrative process to be anti-competitive [and may take account of anti-competitive practices in setting compensation] ....'</p> |
| <b>20-year minimum term of protection (Article 33)</b>                       | 'The term of protection available shall not end before the expiration of a period of twenty years counted from the filing date.'  |
| <b>Data protection and Exclusivity (Article 39)</b>                          | 'Protection of undisclosed information...In the course of ensuring effective protection against unfair competition...Members shall protect undisclosed information...and data submitted to governments or governmental agencies...'   |
| <b>Transitional Periods (Articles 65 and 66)</b>                             | TRIPs provides a period of transition during which countries are required to conform their national legislation and practices to the requirements. The latest dates for WTO Members were/are: 1996 for developed countries; January 1, 2000, for developing countries (as a general rule); January 1, 2005, for developing countries who had not introduced patents before joining the WTO; and January 1, 2006, for least-developed countries. TRIPs specifically acknowledges the economic, financial, administrative and technological constraints of the least-developed countries and therefore provides for possible extension of the transitional period.  |
| <b>Transfer of technology and technical cooperation (Articles 66 and 67)</b> | 'Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base...and shall provide, on request and on mutually agreed terms and conditions, technical and financial cooperation in favour of developing and least-developed country Members.'   |
| <b>Review (Article 27:3) (also Article 71:1)</b>                             | <p>'The provision of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.'</p> <p>'The Council for TRIPs shall review the implementation of this Agreement after the expiration of the transitional period referred to in paragraph 2 of Article 65. The Council shall, having regard to the experience gained in its implementation, review it two years after that date, and at identical intervals thereafter. The Council may also undertake reviews in the light of any relevant new developments which might warrant modification or amendment of this Agreement.'</p>   |

*The umbrella of principles, which oversees the TRIPs Agreement, envisages that flexibility of interpretation will provide a balance between public and private interests.*

regime or any combination thereof. This is an option, which, if applied flexibly, may help incorporate into the domestic legislation in South Asian developing countries norms like conservation of biodiversity, protection of traditional and indigenous knowledge and an equitable system of benefit sharing, technology transfer and just rewards<sup>54</sup>. The *sui generis* framework is, however, subject to the principles of GATT obligations on national and most-favoured-nation treatment of foreign nationals - as asserted in Articles 3,4 and 5. Government cannot, therefore, confine

#### **Box 8: Article 27:3**

1. Parties may exclude from patentability plants and animals.
2. Patent protection to be made available to micro-organisms.
3. Essentially biological processes for the production of plants can be excluded.
4. Non-biological and microbiological processes are patentable.
5. Systems of plant varieties protection must be effective.

the content of the IPRs. The Agreement now provides foreign nationals with a legitimate expectation of parity in treatment on those aspects regarding the exploitation, maintenance and enforcement of intellectual property rights. The umbrella of principles, which oversees the TRIPs Agreement, envisages that flexibility of interpretation will provide a balance between public and private interests<sup>55</sup>.

*It should be stressed that Article 27:3(b) does not provide a model law for a TRIPs compliant sui generis regime. Neither, however, does it expressly advocate the adoption of existing international conventions, which regulate plant breeders' rights or plant varieties.*

It should be stressed that Article 27:3(b) does not provide a model law for a TRIPs compliant *sui generis* regime. Neither, however, does it expressly advocate the adoption of existing international conventions, which regulate plant breeders' rights or plant varieties. Furthermore, the absence of explanatory notes or drafting history suggest that for the short term at the very least South Asian developing countries adopt a broad approach to implementation of Article 27:3(b).

3.6.1 It is insufficient however for South Asian developing countries to adopt a passive stance towards the growing tendency by commercial breeders to utilise the TRIPs Agreement to entrench their interests. For example, with the introduction of TRIPs, plant breeders and patent owners have attempted to assert property rights over innovations and practices which have been derived from accessing plant genera *ex situ* and *in situ*. The indiscriminate grant of patents over what has been termed as 'biospeculation' or 'biopiracy' is but one instance of the uneasy relationship between intellectual property or *sui generis* systems and farmer's rights<sup>56</sup>. Though there is no consensus as to what constitutes 'biopiracy', one that has been favoured is the appropriation of the knowledge and genetic resources of farming and indigenous communities by individuals or institutions seeking exclusive monopoly control (usually patents or plant breeders' rights) over these resources and knowledge<sup>57</sup>. The following demonstrates the issues and governance challenges faced by policymakers in developing countries when implementing TRIPs obligations.

*The indiscriminate grant of patents over what has been termed as 'biospeculation' or 'biopiracy' is but one instance of the uneasy relationship between intellectual property or sui generis systems and farmer's rights.*

Allegations about biopiracy of traditional knowledge are not new. The claim by commercial plant breeders that information regarding the wound healing properties of *haldi* and hypoglycaemic properties of *karela* illustrates the ease with which traditional knowledge can be patented in foreign jurisdictions to the prejudice of countries/communities where the biological materials originate<sup>58</sup>.

## Box 9: The Relationship between IPR, Traditional Knowledge and Genetic Resources

### ***The Turmeric Case***

Turmeric (*Curcuma longa*) is a plant of the ginger family yielding saffron-coloured rhizomes used as a spice for flavouring Indian cooking. It also has properties that make it an effective ingredient in medicines, cosmetics and as a colour dye. As a medicine, it is traditionally used to heal wounds and rashes.

In 1995, two Indian nationals at the University of Mississippi Medical Centre were granted US patent no. 5,401,504 on “use of turmeric in wound healing”.

The Indian Council of Scientific and Industrial Research (ICSIIR) requested the US Patent and Trademark Office (USPTO) to re-examine the patent.

ICSIIR argued that turmeric has been used for thousands of years for healing wounds and rashes and therefore its medicinal use was not novel.

Their claim was supported by documentary evidence of traditional knowledge, including an ancient Sanskrit text and a paper published in 1953 in the Journal of the Indian Medical Association.

Despite arguments by the patentees, the USPTO upheld the ICSIIR objections and revoked the patent.

**Observations:** The turmeric case was a landmark case as it was the first time that a patent based on the traditional knowledge of a developing country had been successfully challenged. The legal costs incurred by India in this case have been calculated by the Indian Government to be about at US \$10,000.

### ***The Neem Case***

Neem (*Azadirachta indica*) is a tree from India and other parts of South and Southeast Asia. It is now planted across the tropics because of its properties as a natural medicine, pesticide and fertilizer. Neem extracts can be used against hundreds of pests and fungal diseases that attack food crops; the oil extracted from its seeds is used to treat colds and flu; and mixed in soap, it is believed to offer low cost relief from malaria, skin diseases and even meningitis.

In 1994 the EPO granted European Patent No. 0436257 to the US Corporation W.R. Grace and USDA for a “method for controlling fungi on plants by the aid of a hydrophobic extracted *neem* oil”.

In 1995 a group of international NGOs and representatives of Indian farmers filed a legal opposition against the patent.

They submitted evidence that the fungicidal effect of extracts of *neem* seeds had been known and used for centuries in Indian agriculture to protect crops, and thus the invention claimed in EP257 was not novel.

In 1999 the EPO determined that according to the evidence “all features of the present claim have been disclosed to the public prior to the patent application... and [the patent] was considered not to involve an inventive step”.

The patent was revoked by the EPO in 2000.

### The *Ayahuasca* Case

For generations, *shamans* of indigenous tribes throughout the Amazon Basin have processed the bark of *Banisteriopsis caapi* to produce a ceremonial drink known as “*ayahuasca*”. The *shamans* use *ayahuasca* (which means “vine of the soul”) in religious and healing ceremonies to diagnose and treat illnesses, meet with spirits, and divine the future.

An American, Loren Miller obtained US Plant Patent 5,751 in June 1986, granting him rights over an alleged variety of *B. caapi* he had called “*Da Vine*”. The patent description stated that the “plant was discovered growing in a domestic garden in the Amazon rain-forest of South America.” The patentee claimed that *Da Vine* represented a new and distinct variety of *B. caapi*, primarily because of the flower colour.

The Coordinating Body of Indigenous Organizations of the Amazon Basin (COICA) - an umbrella organisation representing over 400 indigenous groups - learned of the patent in 1994. On their behalf the Center for International Environmental Law (CIEL) filed a re-examination request on the patent. CIEL protested that a review of the prior art revealed that *Da Vine* was neither new nor distinct. They argued also that the granting of the patent would be contrary to the public and morality aspects of the Patent Act because of the sacred nature of *Banisteriopsis caapi* throughout the Amazon region. Extensive, new prior art was presented by CIEL, and in November 1999, the USPTO rejected the patent claim agreeing that *Da Vine* was not distinguishable from the prior art presented by CIEL and therefore the patent should never have been issued. However, further arguments by the patentee persuaded the USPTO to reverse its decision and announce in early 2001 that the patent should stand.

**Observation:** Because of the date of filing of the patent, it was not covered by the new rules in the US on *inter partes* re-examination. CIEL were therefore unable to comment on the arguments made by the patentee that led to the patent being upheld.

### The *Hoodia* Cactus Case

The *San*, who live around the Kalahari Desert in southern Africa, have traditionally eaten the *Hoodia* cactus to stave off hunger and thirst on long hunting trips. In 1937, a Dutch anthropologist studying the *San* noted this use of *Hoodia*. Scientists at the South African Council for Scientific and Industrial Research (SACSIR) only recently found his report and began studying the plant.

In 1995 SACSIR patented *Hoodia*'s appetite-suppressing element (P<sup>57</sup>). In 1997 they licensed P<sup>57</sup> to the UK biotech company, Phytopharm. In 1998, the pharmaceutical company Pfizer acquired the rights to develop and market P<sup>57</sup> as a potential slimming drug and cure for obesity (a market worth more than £6 billion), from Phytopharm for up to \$32 million in royalty and milestone payments.

On hearing of possible exploitation of their traditional knowledge, the *San* people threatened legal action against the SACSIR on grounds of “biopiracy.” They claimed that their traditional knowledge had been stolen, and SACSIR had failed to comply with the rules of the Convention on Biodiversity, which requires the prior informed consent of all stakeholders, including the original discoverers and users.

Phytopharm had conducted extensive enquiries but were unable to find any of the “knowledge holders”. The remaining *San* were apparently at the time living in a tented camp 1500 miles from their tribal lands. The SACSIR claimed they had planned to inform the *San* of the research and share the benefits, but first wanted to make sure the drug proved successful.

In March 2002, an understanding was reached between the SACSIR and the *San* whereby the *San*, recognised as the custodians of traditional knowledge associated with the *Hoodia* plant, will receive a share of any future royalties. Although the *San* are likely to receive only a very small percentage of eventual sales, the potential size of the market means that the sum involved could still be substantial. The drug is unlikely to reach the market before 2006, and may yet fail as it progresses through clinical trials.

**Observation:** This case would appear to demonstrate that with goodwill on all sides, mutually acceptable arrangements for access and benefit sharing can be agreed upon. The importance of intellectual property in securing future benefits appears to have been recognised by all parties including the *San*.

Source: CIPR, 2000

## Implementation of *Sui Generis* Obligations

*Farmers' Rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources are recognised to allow farmers, to participate fully in the benefits derived at present and in the future.*

*Indigenous and farming communities' knowledge, innovation and practices related to plants and plant genetic resources shall be protected and encouraged.*

*It may be premature to be overly critical about the efforts of the policymakers in implementing Article 27:3(b). The article is presently under review and it is unclear what the modalities are likely to be for the future shape of Article 27:3 (b).*

Since South Asian developing countries are not obliged under TRIPs to provide patent protection for plants and plant varieties any *sui generis* legislation should be guided by the following principles:<sup>59</sup>

- States have the sovereign right over their own natural resources including their genetic resources.
- Farmers' Rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources are recognised in order to allow farmers, their communities, and countries in all regions of the world to participate fully in the benefits derived at present and in the future, from the improved use of plant genetic resources, through plant breeding or other scientific methods.
- Biological diversity including genetic diversity shall be conserved, enhanced and sustainably used. Patents and other IPRs shall be supportive of and not run counter to this objective.
- Access to genetic resources shall be subject to prior informed consent. Where granted, access shall be on mutually agreed terms.
- Benefits arising from the commercial and other utilisation of genetic resources shall be shared in a fair and equitable way upon mutually agreed terms, multilaterally or on a bilateral basis.
- The results of research and development arising from the utilisation of genetic resources, as well as the technology using such resources, shall be shared in a fair and equitable way on terms mutually agreed upon. Access to, and transfer of technologies relevant to the conservation of biological diversity, to the sustainable use of its components, and to technologies that make use of genetic resources shall be provided and/or facilitated under fair and most favourable terms.
- Indigenous and farming communities' knowledge, innovation and practices related to plants and plant genetic resources shall be protected and encouraged. Special measures shall be taken to ensure this, including mechanisms of free and informed consent."

The following provides a check-list of the progress of *sui generis* legislation in South Asian developing countries with the exception of Nepal.

It may be premature to be overly critical about the efforts of the policymakers in implementing Article 27:3(b). The key reason being that Article 27:3 (b) is presently under review and it is unclear what the modalities are likely to be for the future shape of Article 27:3 (b).

| Box 10                        |  |  |  |   |
|-------------------------------|--|--|--|---|
|                               | Bangladesh   | India  | Pakistan   | SriLanka  |
| <b>Relevant Legislation</b>   | Plant Varieties Act of Bangladesh [PVA] 1998<br><br>Biodiversity and Community Knowledge Protection Act of Bangladesh [CKB]  | Protection of Plant Varieties and Farmers' Right Act 2000(PVA)<br><br>Biodiversity Bill 2002   | Plant Breeders' Rights Ordinance 2000  | Protection of New Plant Varieties (Breeders Rights) 2001 (Draft Provision)  |
| <b>Plant Breeders' Rights</b> | <p><u>Requirement</u></p> <p>'nonexistent plant variety'<br/>'consistent'<br/>'stable'<br/>'distinctive'</p> <p><u>Scope</u><br/>Plant Breeders Rights are made subject to CKB (Art 3).Note under Article 4 'protection' does not constitute a right analogous to a generalized intellectual property right</p> <p><u>Breeders' Exemption and Derogations</u><br/>Research exemption under Article 7:10</p> <p><u>Duration</u><br/>A tiered structure under Article 16:<br/>(a) 7 years for annuals<br/>(b) 10 years for Bi-annuals<br/>(c) 15 years for perennials<br/>(d) 25 years for woody plants, utilizing timber.</p> | <p><u>Requirement</u></p> <p>'novelty',<br/>'distinctiveness',<br/>'uniformity' and<br/>'stability';</p> <p><u>Scope</u><br/>Full commercial rights under s28</p> <p><u>Breeders' Exemption and Derogations</u><br/>Research: s30</p> <p><u>Duration</u><br/>A section 23 registration attracts protection for the period of nine years in the case of trees and vines, six years in the case of other crops. This may be reviewed and renewed for remaining period but with a ceiling not exceeding:<br/>(i) in the case of trees and vines, eighteen years from the date of registration of the variety;<br/>(ii) in the case of extant variety, fifteen years from the date of the notification of that variety by the Central Government under section 5 of the Seeds Act, 1966; and<br/>(iii) in the other cases, fifteen years from the date of registration of the variety.<br/>N/Available</p> | <p><u>Requirement</u></p> <p>Novel, distinct, uniform, stable, and designated acceptable denomination</p> <p><u>Scope</u><br/>Applies to apply to all sexually (vegetatively) propagated plant species, except plant varieties with terminator genes or other similar technology and microorganisms. (Article 6)</p> <p>Commercial rights under Article 27</p> <p><u>Breeders' Exemption and Derogations</u><br/>Article 33: harvested material, including entire plants and parts of plants are excluded in specific instances. Private non-commercial use, research and breeding varieties.</p> <p><u>Duration</u><br/>Article 29 provides 25 years in the case of trees and vines and 20 years in the case of all other plants.</p> | <p><u>Requirement</u></p> <p>New, distinct, homogenous, stable</p> <p><u>Scope</u><br/>Propagating material of protected variety. The commercial proprietary interests extend to propagating/ stocking harvested material(Art 14). However Article 14(5) is suspended in specific instances following the sale of the protected varieties.</p> <p><u>Breeders' Exemption and Derogations</u><br/>Private non-commercial use, research and breeding varieties Note also Article 14(5)(l).</p> <p><u>Duration</u><br/>25 years for trees and vines<br/>Other genera or species will be 25 years</p> |

|  | <b>Bangladesh</b>   | <b>India</b>  | <b>Pakistan</b>   | <b>SriLanka</b>   |
|--|---|---|---|---|
| <b>Farmers' Rights/<br/>Community Rights</b>         | <p>Article 22 creates the farmer's right and plant protection fund. The rights extends to fiscal and institutional support</p> <p>Community rights under Article 20:5-7</p>   | <p>The Act provides an exhaustive set of rights which includes those engaged in the conservation of genetic resources of land races and wild relatives of economic plants and their improvement through selection and preservation (ss39-41)</p> <p>Note in particular the notion that sale of seed is the subject matter of a mature legal right. When availing himself of this right the farmer cannot use label or designations that suggest an association with the rival protected variety</p> <p>Innocent infringement under s42</p> <p>Authorisation of farmer's variety under s43</p> | <p>Express provision covering a farmer's traditional right to save, use, exchange, share or sell his farm produce of a protected variety. It does not extend to sale for the purpose of reproduction under a branded marketing arrangement (Art 31)</p> | <p>No express provision in the Act. However Article 14(4) (II) provides that the Minister may by regulations, within reasonable limits and subject to the safeguarding of the legitimate interests of the holders of breeder's right, restrict the breeder's right in relation to the varieties of any specified plant genera or species in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety or a variety covered by section14(3)(a)(i) or (ii).</p> |
| <b>Farming Related<br/>Traditional<br/>Knowledge</b> | <p>Article 4 and 5 reflects the needs of rural farming communities and encouraging traditional practices and knowledge .</p> <p>Note the concept of a 'community variety' under Article 4.</p> <p>Article 7:2 provides that all plant varieties existing constitute prior knowledge and hence ineligible.</p> <p>Article 7:6 'cultural erosion' as a condition for refusing registration.</p> <p>Also Article 20: knowledge, culture and practices of cultivation</p> | <p>Excluding "discoveries" of knowledge existing in nature through patent legislation</p> <p>Novelty requirement not met if publication takes place in Convention country.</p>  | <p>No express reference to Traditional Knowledge (TK) or the needs of local farming communities</p>   | <p>No express mention.</p>  |

|   | <b>Bangladesh</b>   | <b>India</b>  | <b>Pakistan</b>   | <b>SriLanka</b>  |
|---|---|---|---|--|
| <b>Compensation and Benefit Sharing</b>                       | see CKB<br>Compulsory licensing   | Rights for communities under section 41; compulsory licenses<br>National Gene Fund<br>Compulsory licenses under s47   | No express provisions.<br><br>Compulsory Licensing  | No Provision.<br><br>Compulsory licensing                            |
| <b>Biodiversity and Biopiracy</b>                             | Market incentives for farmers as innovators under Article 7 (cf Article 9)<br>Note Article 7:6 which stresses the importance of the new plant variety being supportive of biodiversity and/or existing genetic or biological resources.<br><br>Burden of proof on claimant to show that the plant variety is novel (Article 7:2)<br><br>Article 7:7 places the burden of proof on the innovator of transgenic plants to fulfil bio-safety standards<br>Article 10 prescribes punitive measures for violations and infringements of the Act. | Creating market incentives for breeders through strong monitoring and enforcement regimes.<br><br>Excludes from registration particular varieties under the heading of novelty and distinctiveness<br>Prohibition of gene- use restricting technology.<br>Punitive sanctions on infringement and no full disclosure under s34 | Article 40 contains provisions which penalise the rights holder for inaccuracies in information filed in the application.   | No Provision outside the limited opposition provision in Article 30. |
| <b>Sovereign rights over biological and genetic resources</b> | Article 7:3 regards state patronage of plant variety rights as conditional on demonstrable , tangible and of substantial benefit to the population.<br>Also Article 7:5 permits refusal of registration where it is contrary to public policy or morality.  | see "Statement of Objects and Reasons"<br>National Gene Fund under s45  | A declaration from the breeder that the variety is safe and has no negative consequences on human, plant or animal health and welfare of the public (Art 6)<br>Creation of Plant Gene Fund under Article 9 from royalties | Ambivalence.   |

## Comments

1. The absence of any explicit reference to the UPOV can be utilised for the benefit of South Asian developing countries to pursue their national social and ecological policies whilst providing a minimal plant property protection system which is effective. 'Effectiveness' can be interpreted in the narrowest sense of ensuring the existence of clear registration, monitoring and enforcement mechanisms.
2. The legislation adopts the criteria under the 1978 Act for plant variety. One suggestion is that the criteria of 'uniformity' and 'stability' be replaced by the criterion of 'identifiability'. It is possible to argue that this loose terminology will include the diverse plant and ecological materials that presently exist in rural communities in this region.<sup>60</sup>
3. The obligations under Article 27:3 (b) must be read alongside Article 7 and 8 to give particular priority in policymaking towards retaining sovereign autonomy over genetic resources, the protection of local and traditional knowledge and the creation of benefit sharing systems (eg. gene bank depositories, compensation funds, registries for recording innovation and traditional knowledge). It is particularly noticeable that the legislation in Pakistan and Sri Lanka does not deal with some or all of these aspects comprehensively.
4. To facilitate technology transfer, a form of positive discrimination could be pursued to encourage investment by foreign transnational corporations and joint ventures.
5. Greater emphasis could also be placed by governments in Sri Lanka and Pakistan on the communities rights to traditional or indigenous knowledge.
6. The maturation of the concept of farmer's privilege into a fully blown right with commercial attributes is critical to ensuring that multinational corporations do not dominate the seed market in India.
7. Need to review the administration and operationalisation of the gene fund.

## The Doha Declaration and the Process of Review

***NGOs and religious organisations expressed concern that with the expanding net of intellectual property rights the livelihood of communities, particularly amongst the farming sector in the developing world would be mostly under threat.***

***The absence of clear prescriptions in Article 27:3 (b) arguably provides South Asian developing countries with an opportunity to entrench non-economic and socio-cultural values and norms with regard to genetic resources, biodiversity and traditional knowledge.***

***During March 2002, the TRIPs Council meeting two separate areas were considered as part of the Doha Process. Review of the provisions of Article 27:3(b)<sup>62</sup> and the Protection of Traditional Knowledge and Folklore.***

5.1 The fact that there was no separate declaration in the Doha Ministerial Round of meetings on TRIPs and Food Security has caused some concerns. NGOs and religious organisations expressed concern that with the expanding net of intellectual property rights the livelihood of communities, particularly amongst the farming sector in the developing world would be mostly under threat<sup>61</sup>. Whilst not minimising the gravity of the concerns the TRIPs Agreement is envisaged as posing for food security, conservation and biosafety of ecosystems and traditional knowledge, these must not be overstated. Two reasons may be given. First, the foregoing indicates that plant varieties and breeders' right legislation go some way to providing a counterpoint to the problems potentially created by an Agreement that has been regarded as being particularly biased towards the appropriation of information existing in nature by the private sector. Second, the absence of clear prescriptions in Article 27:3 (b) arguably provides South Asian developing countries with an opportunity to entrench non-economic and socio-cultural values and norms with regard to genetic resources, biodiversity and traditional knowledge. What is unclear at this juncture however is whether added pressure may be brought to bear on developing countries either through bilateral pressures or concessions in return for amending Article 27:3(b) to incorporate the 1991 Act.

5.2 The mandate for the present review of Article 27:3(b) is now contained in the Doha Declaration, paragraph 19, which states that: '19. We instruct the Council for TRIPs, in pursuing its work programme including under the review of Article 27.3(b), the review of the implementation of the TRIPs Agreement under Article 71.1 and the work foreseen pursuant to paragraph 12 of this declaration, to examine, *inter alia*, the relationship between the TRIPs Agreement and the Convention on Biological Diversity, the protection of traditional knowledge and folklore, and other relevant new developments raised by members pursuant to Article 71.1. In undertaking this work, the TRIPs Council shall be guided by the objectives and principles set out in Articles 7 and 8 of the TRIPs Agreement and shall take fully into account the development dimension.'

5.3 In its meeting during March 2002, the TRIPs Council requested the Council for Trade-Related Aspects of Intellectual Property Rights to prepare short papers, *inter alia* related to the review of Article 27:3(b). Two separate areas were considered by the Council as part of the Doha Process: (i) review of the provisions of Article 27:3(b)<sup>62</sup> and (ii) The Protection of Traditional Knowledge and Folklore<sup>63</sup>. The broad impression gained from a survey of the documentation made available to the WTO underlines the need for a Ministerial communication that states clearly the relationship between TRIPs, CBD, UPOV and the International Treaty. The following additional points should also be noted:

- a) It is becoming apparent that there are markedly different views about the scope of the review process. On the one hand, countries like the United States, Switzerland, EC and Japan are keen on using the review process to increase protection for commercial plant

**Developing countries strongly raise their voice against the imbalance in the international arrangements arguing that there was no counterpoint to the system of intellectual property rights set in place by TRIPs and UPOV.**

breeders. One way of achieving this would be to amend Article 27:3(b) so that patent protection is extended to plant and animal inventions<sup>64</sup>. Submissions by Japan, Singapore and Australia suggest that the reduction in pluralist approaches will better guarantee market incentives for private investment in innovation, facilitate transfer of technology and address the problems faced by both developing and developed countries in agriculture, nutrition, health and environment<sup>65</sup>. The submission by Australia adopts a less aggressive stance and proposes preservation of the *status quo* without any further dilutions of Article 27:3(b) which attempts to maintain a balance between sovereign integrity and rights of private breeders as well as commercial innovators in the biotechnology industries.<sup>66</sup> Developing countries however argue that such policy prescriptions are counterproductive to sustaining the viability of traditional knowledge and practices and do not necessarily address the particular needs and values of agricultural communities in developing countries<sup>67</sup>. One view strongly echoing the concerns raised by developing countries about the imbalance in the international arrangements is that there was no counterpoint to the system of intellectual property rights set in place by TRIPs and International Agreements on Plant Varieties and Breeders' Rights.

**To better enable countries to implement Article 27:3(b) in the light of their social and environmental policies it is imperative that the terms within the *sui generis* regime are made reasonably clear.**

b.) To better enable countries to implement Article 27:3(b) in the light of their social and environmental policies it is imperative that the terms within the *sui generis* regime are made reasonably clear. For example, the submissions by India, Brazil, Thailand and Peru express concerns that the distinction between plants, animals and micro-organisms and what constitutes an effective *sui generis* system are not readily apparent.<sup>68</sup> Kenya, which was representing the African Group, together with India called for either an amendment or at the least clarification of Article 27:3(b).<sup>69</sup> For example, it is proposed that life forms, in particular, plants and animals, micro-organisms, genes and natural processes should not be patentable<sup>70</sup>.

c.) Developing countries have also tabled a recommendation that Article 27:3(b) expressly prohibit the patenting of inventions based on traditional knowledge or those that violate Article 15 of the CBD<sup>71</sup>. This proposal perhaps reflects the impression held by many in the developing world as to the present imbalance in the TRIPs Agreement which seems to regard knowledge and information regarding genetic resources, traditional knowledge and other forms of public goods as being legitimate subject matter for private appropriation<sup>72</sup>. A suggestion which attempts to reorientate the property model so that other interests can be accommodated, is that a footnote be inserted into Article 27:3(b) to remove any uncertainties regarding the scope of the term, plant variety protection, by stating that any *sui generis* protection can<sup>73</sup>:

“provide for: (i) the protection of innovations of indigenous and local farming communities in developing countries, consistent with CBD and the International Undertaking on Plant Genetic Resources; (ii) the continuation of traditional farming practices including the right to save and exchange seeds, and sell farmers' harvest; and (iii) the prevention of anti-competitive rights or practices which threaten the food sovereignty of developing countries, as is permitted by Article 31 of the TRIPs Agreement.”

**Developing countries have tabled a recommendation that Article 27:3(b) expressly prohibit the patenting of inventions based on traditional knowledge or those that violate Article 15 of the CBD.**

d.) With regard to the concept of 'farmer's rights', which is not expressly referred to in Article 27:3(b), the submission by Thailand advocates that the derogations from the plant variety protection should as a minimum prescribe that the farmers' rights include the right to sow and share harvested seed of a protected variety, communities' rights

and compulsory licensing in the event of national emergencies and public non-commercial use where costs of purchase prove to be prohibitive<sup>74</sup>.

***Given the extent to which South Asian developing countries in particular have relied on the 1978 UPOV rather than the 1991 Convention, there has been some discussion whether the enactments in national legislations constitute an effective sui generis regime.***

- e) Given the extent to which South Asian developing countries in particular have relied on the 1978 UPOV rather than the 1991 Convention, there has been some discussion whether the enactments in national legislations constitute an effective *sui generis* regime. The United States has strongly argued that the rights of the commercial breeders be clearly ascertainable and the scope of genera or species extended to all plant varieties and has strongly pursued a course which favours Article 27:3(b) as incorporating the 1991 Act<sup>75</sup>. Furthermore, it is suggested that the rights under the plant varieties legislation should accrue to the rights holder either through contract or succession and not by tradition.

## Summary and Conclusions

*Any plant indigenous to India or Bangladesh were subjected to a process of reverse engineering and a transgenic plant were to be produced. Its owner would now have commercial rights over any subsequent exploitation or use of the product or process*

1. A literal construction of the rights under Article 28 would now mean that if *neem*, turmeric or any other plant indigenous to India or Bangladesh were subjected to a process of reverse engineering and a transgenic plant were to be produced, its owner would now have commercial rights over any subsequent exploitation or use of the product or process<sup>76</sup>.

2. TRIPs is directed against establishing systems of property protection to spheres of economic activity like plant breeder's rights, agro-chemical products and processes, food, and pharmaceuticals. Member States still retain some autonomy when determining the manner in which the obligations are to be implemented but any framework provided cannot be discriminatory in terms of nationality or technology. The word "may" suggests that TRIPs only requires Member States to set in place minimal standards. To a number of developing and least-developed countries this exceeds the standards currently in place.

3. Exemptions that exist are crafted in broad terms thereby "delaying" the problems that are likely to emerge when private and public interests conflict with each other<sup>77</sup>. Article 27:2 provides that:

'[m]embers may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law'.

4. The scope of this exemption has yet to be clarified but it is safe to assume that any claim to patent inventions which pose dangers or threats to human, animal or plant life or health, or more generally cause potential risks to the environment seriously prejudicial to the environment can be legitimately turned down. That said, the scope of government manoeuvre is however limited, since it is incumbent on those relying on this exception, to provide empirical evidence to support the reasons why the commercial exploitation of the invention is necessary for the protection of *ordre public* or morality.

The identification of plants as a subject matter that can properly be excluded should be expressly stated in the national legislation. So that there is no doubt as to the scope of the exclusion, reference should be made to products and processes with regard to hybrids, transgenic plants, cells and seeds<sup>78</sup>.

5. Art 27:3 (b) empowers Member States to exclude the following subject matter from patentability:

'plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes.'

*TRIPs is directed against establishing systems of property protection to spheres of economic activity like plant breeder's rights, agro-chemical products and processes, food, and pharmaceuticals.*

***The inclusion of plant varieties and the restricted scope of Article 27:3(b) more generally raises a challenge for policymakers in developing countries.***

This is not as broad sweeping as it might seem as the sub-paragraph goes to impose on Member States the obligation to 'provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof.' The inclusion of plant varieties and the restricted scope of Article 27:3(b) more generally raises a challenge for policymakers in developing countries to ensure that implementation of this Agreement does not dilute the domain of farmer's rights as envisaged in the UPOV Convention, the International Undertaking on Plant Genetic Resources and the Convention on Biological Diversity.

6. There is now a clear need to obtain a Ministerial Declaration which articulates the interface between Article 27:3(b), the UPOV, CBD and the International Treaty.

***Through creative interpretation of Article 27:3 (b) South Asian developing countries can fulfill their obligations under TRIPs whilst resolving the key socio-cultural and ecological objectives. A separate Ministerial Declaration will be needed to clearly articulate the interface between TRIPs and other international conventions.***

This study provides some foundation for the view that through creative interpretation of Article 27:3 (b) South Asian developing countries can fulfill their obligations under TRIPs whilst resolving the key socio-cultural and ecological objectives. India's efforts in enacting legislation that attempts to balance the interests of commercial breeders and its social and economic interests provides a useful source for undertaking further study on how best the entire region can benefit from a coordinate strategy that transcends national boundaries. It could be that a separate Ministerial Declaration will be needed to clearly articulate the interface between TRIPs and other international conventions. During the interim a hybrid of measures along the lines adopted by India, in the form of the Patents (Second Amendment) Act 2000, the Protection of Plant Varieties and Farmers' Right Act 2000 and the Biodiversity Bill 2002 provide the best way forward. That said, the paper also advises a degree of circumspection since the present review of Article 27:3 (b) does leave developing countries open to bilateral trade pressures and lobbying from multinational corporations to increase plant property protection via the adoption of the 1991 Act.

## Recommendations<sup>79</sup>

1. Since patent rights on plants and plant varieties enable information regarding genes and specific traits in developing countries, plants and other materials subsisting in nature should be specifically excluded from the patent regimes as patentable subject matter.
2. 'Microorganisms' which is not defined in TRIPs can be expressly restricted in national legislation which corresponds with life forms like viruses, algae, bacteria, fungi and protozoa.
3. Biological processes with regard to traditional plant breeding methods are not patentable.
4. Should plants be deemed to be patentable, safeguard provisions with regard to compulsory licensing, revocation mechanisms, administration of patent applications and scrutinising of claims should be instituted.

In addition to this, the domestic legislation should clearly prescribe the extent of the access rights conditional on the patent holder's approval and entrench the concept of farmers' rights.

5. There is now a need for a clear Ministerial Declaration which clarifies the relationship between TRIPs and agreements like the CBD and PGRFA.

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- 17 This Convention was established by the International Convention for the Protection of New Varieties and first adopted in the Diplomatic Conference held in Paris in 1961. The Convention came into force in 1968, after ratification by the United Kingdom, the Netherlands and Germany. The developments in techniques relating to plant breeding through advances in technology and research led to subsequent revisions being made to the Convention. The most recent being the 1991 Act. See [www.upov.org](http://www.upov.org)

- 18 See Article 4.
- 19 The scope of this privilege is not entirely clear. One view is that farmers' privilege does not extend beyond replanting of seeds from previous purchase. See Leskin & Flitner (1997). The 1991 Act will not be considered since the constraints imposed on farmers' privilege indicate that ratification would be contrary to the interests of rural farming communities in developing countries: see Watal and Leskien & Flitner 1997.
- 20 Orthodox farming practices involve saving parts of the harvest, in particular annual cereal and pulse crops to be re-used during the following season. Alternatively, farmers tend to save seeds with a view to replanting in the following season. This runs counter to the interests of commercial plant breeders whose corporate business model requires seeds to be purchased on an annual basis for all plant varieties.
- The 1978 and 1991 Acts of the UPOV Convention differ in the balance struck in this key area.
- 21 This is not an absolute exemption since the claimant must show that use of the protected variety is critical for the commercial production of the new variety.
- 22 This example is drawn from World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) - Submission by FAO IP/C/W/347.
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- 26 See Articles 1, 3 and 5
- 27 Article 16(2) states: "Access to and transfer of technology referred to in paragraph 1 above to developing countries shall be provided and/or facilitated under fair and most favourable terms, including on concessional and preferential terms where mutually agreed, and, where necessary, in accordance with the financial mechanism established by Articles 20 and 21. In the case of technology subject to patents and other intellectual property rights, such access and transfer shall be provided on terms which recognise and are consistent with the adequate and effective protection of intellectual property rights. The application of this paragraph shall be consistent with paragraphs 3, 4 and 5 below.". Article 16(3) states: "Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that Contracting Parties, in particular those that are developing countries, which provide genetic resources are provided access to and transfer of technology which makes use of those resources, or mutually agreed terms, including technology protected by patents and other intellectual property rights, where necessary, through the provisions of Articles 20 and 21 and in accordance with international law and consistent with paragraphs 4 and 5 below.".
- Article 16(5) states: "The Contracting Parties, recognising that patents and other intellectual property rights may have an influence on the implementation of this Convention, shall cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to its objectives.". Article 16(4) states: "Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that the private sector facilitates access to, joint development and transfer of technology referred to in paragraph 1 above for the benefit of both governmental institutions and the private sector of developing countries and in this regard shall abide by the obligations included in paragraphs 1, 2 and 3 above."
- 28 The following account draws on WTO- Committee on Trade and Environment - The Relationship Between the Convention on Biological Diversity and the Agreement on the Trade-Related Aspects of Intellectual Property Rights; with a focus on Article 27:3(b)
- WT/CTE/125. Also WT/CTE/W/158 Following the meeting in Rome on 3/11/2001 it is now known as the International Treaty on Plant Genetic Resources for Food and Agriculture (2001). Available at [www.fao.org/biodiversity/doc\\_en.asp](http://www.fao.org/biodiversity/doc_en.asp)
- 29 See Resolution 8/83 of the 1983 FAO Conference and subsequent Conference Resolutions (4/89, 5/89 and 3/91)
- 30 Full text available at: <ftp://ext-ftp.fao.org/waicent/pub/cgrfa8/iu/ITPGRe.pdf>
- 31 See Res. 4/89 adopted by FAO Conf. 25th Sess., Rome Nov. 11-20, 1989
- 32 S Gauri and J Christie "Intellectual Property, Biodiversity and the Rights of the Poor" Canadian Council for International Co-operation, Trade and Poverty Series, 3. Global Trade/Global Poverty, NGO Perspectives on Key Challenges for Canada. Available at [http://www.gefoodalert.org/library/admin/uploadedfiles/Intellectual\\_Property\\_Biodiversity\\_and\\_the\\_Rig.htm](http://www.gefoodalert.org/library/admin/uploadedfiles/Intellectual_Property_Biodiversity_and_the_Rig.htm)
- 33 See MS Swaminathan, "Farmer's Rights and Plant Genetic Resources" (1998) *Biotechnology and Development Monitor*, No. 36 <http://www.biotech-monitor.nl/3603.htm>
- 34 D Wood, "Real Rights for Farmers" (1998) *Biotechnology and Development Monitor*, No. 36
- 35 Note for example the UPOV Acts only regard the contributions as a 'privilege' not as a right.

- 36 See International Union for the Protection of New Varieties of Plant and International Undertaking [(FAO)Resolution 4/89].
- 37 Res. 5/89 adopted by FAO Conf. 25th Sess., (Rome Nov. 11-20, 1989)
- 38 G Pursell, Some Aspects of the Liberalisation of South Asian Agricultural Policies: How Can the WTO Help? (World Bank, 29) Ed B Blarel G Pursell and A Valdes (Washington: World Bank, Allied Publishers, 1996).
- 39 Alberto Valdes , 'Overview of the Global Impact of the Uruguay Round and Lessons from Early Reformers', B Blarel G Pursell and A Valdes (eds), n5, pp4-5
- 40 Ibid.7
- 41 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) - Submission by India IP/C/W/198
- 42 Ibid.
- 43 Ibid.
- 44 World Bank Report, p 139
- 45 See generally, K Maskus, Intellectual Property Rights in the Global Economy (International Institute of Economics, 2000); J Watal, Intellectual Property Rights in the WTO and Developing Countries (Kluwer, 2001).
- 46 See Article 7 and 8.
- 47 See India - Patent Protection for Pharmaceutical and Agricultural Chemical Products, WTO Document WT/DS50/R (Panel Report) and WT/DS50/AB/R (Appellate Body Report).
- 48 See WIPO, The Role of Industrial Property in Economic Development WIPO/IP/ACC/86/5. WIPO, Introduction to Intellectual Property Theory and Practice (Kluwer, 1997) 45-57, PW Grubb, Patents for Chemicals, Pharmaceuticals and Biotechnology (Oxford: Clarendon Press, 1999) 16-23.
- 49 See for example section 102(a), 35 USC which regards relevant public disclosure as not taking place if it is made outside the territorial jurisdiction of the United States.
- 50 Under Article 3:2 of the European Directive it is stipulated that: 'Biological material which is isolated from its natural environment or processed by means of a technical process may be the subject of an invention even if it is already occurred in nature'.
- 51 See Carlos at p182. Examples include: US Patent 4,594,810 which relates to a claim for an inbred corn line having the designation of AI; US Patent 4,762,964 stipulates a claim for a new and distinct plant variety, Yensen 3a, of *Distichlis palmeri*; Claim 7 of US Patent 4,626,610 relates to novel soybean varieties.
- 52 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) - Submission by India IP/C/W/198
- 53 See India - Patent Protection for Pharmaceutical and Agricultural Chemical Products, WTO Document WT/DS50/R (Panel Report) and WT/DS50/AB/R (Appellate Body Report).
- 54 World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) - Submission by Kenya IP/C/W/163 and by India IP/C/W/161
- 55 See Article 7 and the Preamble.
- 56 Correa,
- 57 See [www.etcgroup.org](http://www.etcgroup.org)
- 58 World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) - Submission by India IP/C/W/198.
- 59 Leskien & Flitner, "Intellectual Property Rights and Plant Genetic Resources: Options for a Sui Generis System", Issues in Genetic Resources No. 6, IPGRI, Rome 1997 Available at [www.grain.org/publications/chapter4-en.cfm](http://www.grain.org/publications/chapter4-en.cfm)
- 60 A Seiler, "Sui Generis Systems: Obligations and Options for Developing Countries." *Biotechnology and Development Monitor*, No. 34, <http://www.biotech-monitor.nl/3402.htm>
- 61 See Actionaid, 'Trade Related Intellectual Property Rights and the Threat to Food Security and Farmers' Rights', Briefing Paper for the Conference of the Commission on Intellectual Property Rights (2002) Available at [www.actionaid.org](http://www.actionaid.org). See also Bob van Dillen and Maura Lean, 'Biopatenting and the Threat to Food Security' (CIDSE, 2000). Available at <http://www.cidse.org/pubs/tg1ppcon.htm>. See D Green, 'CAFOD analysis of WTO Doha Declarations' (2001). Available at [http://www.cafod.org.uk/livefromdoha/doha\\_analysis.shtml#11](http://www.cafod.org.uk/livefromdoha/doha_analysis.shtml#11).
- 62 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) IP/C/W/369
- 63 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) IP/C/W/370

- 64 Submission of the United States at See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) IP/C/M/29 para 185
- 65 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) at para 6; also submissions by Japan, IP/C/M/32 para 142, Singapore, IP/C/M/25 para 80 and Australia, IP/C/M/24 para 83
- 66 Australia's submission at IP/C/M/28 at para 152. See also the submissions by Canada IP/C/M/25 para 91 by Korea, IP/C/M/26 para 70 and by Japan, IP/C/M/32 para 142
- 67 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) at para 7. See also See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) submissions by India, IP/C/M/24, para 80, IP/C/M/25, para 24 and Kenya, IP/C/M/28 paras 143 and 145
- 68 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) at para 9. Also see IP/C/M/26 para 55 (India), IP/C/M/30 para 156 and 183 (Brazil), IP/C/M/25 para 78 (Thailand) and IP/C/M/29 para 175 (Peru)
- 69 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) IP/C/W/163 (African Group) and IP/C/M/28 para 146 (Kenya), IP/C/M/29 para 163 (India)
- 70 Ibid. See Review Paper paras 10-17
- 71 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) submission by India IP/C/M/25 para 25
- 72 Ibid para 35
- 73 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) at para 36. See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) submission of Kenya on behalf of the African Group IP/C/W/163
- 74 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) IP/C/M/25 para 78
- 75 See World Trade Organisation, Council for Trade-Related Aspects of Intellectual Property Rights - Review of the Provisions of Article 27:3(b) IP/C/W/209
- 76 See for example US Patent Number 5,159,135 and 5,304,718. Cited in C Correa p 176
- 77 See for example Article 30 which enables encroachments into the grant holder's rights so long as this does not unreasonably, on balancing the legitimate interests of both parties, conflict with normal exploitation of the patent. The 'Bolar' exception under Article 8 introduces the 'research exception' and the abuse of monopoly exception under Article 40.
- 78 Carlos Correa in Intellectual Property Rights, the WTO and Developing Countries (TWN, 2000).
- 79 The following draws on the recommendations proposed by Carlos Correa in Intellectual Property Rights, the WTO and Developing Countries (TWN, 2000).