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As human biology is in no way determined by the political boundaries of nation states, tags of nationality can not be attached to plants or animals or the genetic diversity that man has been conserving over generations. Developing nations should realise that a system of royalties for use of genetic resources through multinational arrangements would only heighten the mistrust and chaos. Despite being associated with geopolitical entities historically, genetic resources should be treated as a common heritage in the best interests of humanity.

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A major snag of the Convention on Biological Diversity (CBD) is a shift in focus from the ecological[2] and scientific value of biodiversity to its commercial value. Articles 3 and 15 of the CBD recognise the sovereign rights of nation states over their biological resources and their authority to determine access to genetic resources through national legislation. Several countries have developed legal regimes and implementing mechanisms to regulate access to genetic resources (Graja l 1999). This underm ines global food security that is critically dependent on transnational sharing and distribution of genetic resources among human societies. National legislation like India's Biological Diversity Act 2002[3] (Prathapan et al 2006; 2008; Prathapan and Rajan 2009) and the Philippine Executive Order No 247 shut down national boundaries against free access and sharing of genetic resources. Such parochial restrictive measures are gradually becoming ubiquitous all over the world.

Common Heritage Strategy

[4]No country ever possessed all the genetic resources essential for its existence. Every country in the world uses exotic genetic material to enhance the productivity of its crops and livestock as the genetic limits of the native stock can be overcome only by incorporating genes from such material. The Food and Agriculture Organisation's (FAO) 22nd conference adopted a resolution (Resolution 8/83) that plant genetic resources are a heritage of mankind to be preserved, and to be freely available for use, for the benefit of present and future generations. Developing countries enmasse pushed through and adopted the resolution, while Canada, France, Germany, Japan, the United Kingdom and the United States officially reserved their position with respect to the FAO undertaking as it explicitly specifies that the term "plant

[5] genetic resources ove lopi ng c ou nt a r i a nc e w i t h t pr ote c t ion . I n ide d u nde r t he D ut ion , t houg h ic a l ly- adv a nc onve nt ion on Bio dom a i n , t he de ve r eig n r ig ht s nd. T he C BD ges our c e s.

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COMMENTARY

Biological Diversity: Heritage

K Divakaran

COMMENTARY

6The demand of the developing countries in CBD in 1992 for sovereign rights over genetic resources and equitable sharing of commercial benefits was based on little scientific input. It has been pointed out that the scientific board of the CBD is dominated by politicians and professional negotiators hindering effective action on the basis of scientific evidence (Laikre et al 2008). As the developing countries are the most populated with a gap between demand and production of food, they should ideally have argued for open access and free exchange of genetic resources instead of the climate chaos can only Rio de Janeiro. But the thrust on benefit-sharing led them to overlook from the global plant genetic the precariousness state of food security. The year 2008 witnessed the lowest food grain stocks in the last three decades and the world consumed more food than it produced. Crop pandemics like the Ug99 strain of wheat rust and increase in food prices leading to riots in some parts of Asia and Africa raise the spectre of an impending food crisis (Almeida 2009; Walt 2008) that can be averted only by pooling the entire resources of the global plant genetic estate.

Wise management of land, water and biodiversity is the key to achieving sustainable food security. Among these three pillars of food security, land and water are relatively immobile and the least amenable for augmentation. But the biodiversity component, being truly renewable, of fers unlimited opportunities to enrich the food production system does not affect its availability elsewhere. Our challenge of feeding the ever-increasing population in the midst of the climate chaos can only be addressed by drawing heavily on the resources to counter corporate patenting has its roots in sheer ignorance of the world's interdependence on genetic resources and the evolutionary history of crop plants. Cultivated plants have originated in different regions of the globe. The nations of the world are locked in a complex net work of plant genetic interdependence. This bondage is growing evermore stronger, especially in the wake of climate change and unprecedented loss of agrobiodiversity. No region can afford to isolate itself, or to be isolated, from access to plant germplasm in other regions of diversity, inspite of the variation in regional relationships. The general global rule is extreme dependence on imported genetic materials (Kloppenberg and Kleinman 1987).

Benefit-Sharing

It is high time the developing nations realise that a system of royalties for use of genetic resources through multinational arrangements would only heighten the mistrust and lead to chaos. Benefit-sharing, both as an incentive for conservation and royalties for access to traditional knowledge, is turning out to be unrealistic (ten Kate and Laird 2000; Laird and Wynberg 2005; Wynberg et al 2009). Despite being associated with geopolitical entities historically, genetic resources

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The site will be shortly expanded to cover three more modules on Banking, State Domestic Product and Agriculture. Eight more modules will be added soon thereafter .

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[7]should be treated as a common heritage in the best interest of humanity (Rajan and Prathapan 2009). The International Treaty on Plant Genetic Resources for Food and Agriculture,[8] adopted after seven years of negotiations at the FAO, marks a step forward in this direction. Many of the core issues remain unresolved, yet the treaty facilitates access and sharing of germplasm of important food and fodder crops and underscores the societal need to leave biological resources in the public domain. The historic treatment of biological resources as a common heritage has enormously benefited humans ociety across the globe. As a result of germplasm exchanges through the network of the Consultative Group on International Agricultural Research (CGIAR), countries have gained much more than their individual contribution through access to a wide variety of invaluable material from all over the world. A human biology is in no way determined by the political boundaries of nation states, tags of nationality cannot be attached to plants or animals or the genetic diversity that man has been conserving over generations. They are bound to be distributed across political boundaries just as ideas in politics, literature or science.

[9]The negotiations on access and benefit sharing, within the current framework of the CBD, do not address the issues created by national isation of genetic resources. The continuing imbroglio (Gnanet al 2010), even after nine years of negotiations, underscores the impractic ality of a legally binding access and benefit-sharing (ABS) regime. The resolution adopted by the FAO in November 2009 summoned the the Conference of Parties (CoP) of the CBD to take into account the special nature ofthe genetic resources for food and agriculture as all countries depend on genetic resources originating elsewhere to address environmental, climate change, natural heritage, sustainable development and food security challenges.

Postscript

The Tenth CoP, which was held in Nagoya, Japan, in October 2010, adopted the Nagoya Protocol on a framework to facilitate ABS. However, the idea of ABS itself remains a pipe dream. It is time the South realises that the commercial benefits that can be derived through sharing of biodiversity and the associated traditional knowledge are insignificant and irrelevant in the context of ensuring food security. Benefit-sharing can neither be a substitute for innovation nor a sustainable source of income for rural communities.

Moreover, restricting access to plant genetic resources to corporate patenting is a kin to shadow-boxing as most multinational seed corporations together deal with no more than nine species and are said to be self-sufficient with breeding material for most of these commercial crops. However, a corporate monopoly can be effectively fought by developing viable alternatives such as non-proprietary seeds. This is exemplified by the public sector research and development system that fuelled the green revolution in India.

The means adopted by the South to address their grievances have now been proved to be wrong and counterproductive. A plausible way to address the issue would have been to try to change the IPR regime, rather than restricting access to biodiversity. The developing world, in its own interest, should forgo benefit-sharing to facilitate free exchange of genetic resources as the benefits from the latter far outweigh those of benefit-sharing.

Notes

1 Convention on Biological Diversity (1992), Rio de Janeiro, Brazil, 5 June 1992, viewed on 5 June 2010 (http://www.cbd.int/convention/convention.shtml).

2 Biological Diversity Act (2002), No 18 of *The Gazette of India Extraordinary*, 5 February 2003, Pub Ministry of Law and Justice (Legislative Department), Government of India, New Delhi, viewed on 18 June 2010 (http://www.nbaindia.org/act/act.htm).

3 Executive Order No 247 (1995): Prescribing guidelines and establishing a regulatory framework for the prospecting of biological and genetic resources, their by-products and derivatives, for scientifc and commercial purpose

s; and other purposes, viewed on 18 June 2010 (http://www.chanrobles.com/eo247.htm#EO247).

4 FAO (1983): "International undertaking on Plant Genetic Resources", Resolution 8/83, C 83/REP/8, Rome, 22 November.

5 FAO (1989): "Agreed Interpretation of the International Undertaking", Resolution 4/89, Rome, 29 November.

6 FAO (2008): "The State of Food Insecurity in the World", viewed on 19 June 2010 (http://www.fao.org/docrep/011/i0291e/i0291e00.htm).

7 FAO (2001): "International Treaty on Plant Genetic Resources for Food and Agriculture", Resolution 3/2001, Rome, November.

8 International Plant Genetic Resources Institute (2006): Developing access and benefit-sharing regimes plant genetic resources for food and agriculture. Policy brief, viewed on 18 June 2010 (http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1146.pdf).

9 Report of the Conference of FAO, Thirty-sixth Session Rome, 18-23 November 2009, viewed on 1 March 2010 (http://www.fao.org/docrep/meeting/018/k6302e01.pdf)

References

Almeida, C (2009): "New Hope in War against Deadly Wheat Fungus", *SciDev.Net*, 19 March, viewed on 19 June 2010 (http://www.scidev.net/en/news/new-hope-in-war-against-deadly-wheat-fungus.html).

Gnann J, S Jungcurt, E Morgera, N Schabus and E Tsioumani (2010): "Summary of the Ninth Meeting of the Working Group on Access and Benefit-sharing of the Convention on Biological Diversity", 22-28 March, *Earth Negotiations Bulletin*, 9 (503): 1-16, viewed on 19 June 2010 (http://www.iisd.ca/vol09/enb09503e.html).

Grajal, A (1999): "Biodiversity and the Nation State: Regulating Access to Genetic Resources Limits Biodiversity Research in Developing Countries", *Conservation Biology,* 13(1), 6-10.

Kloppenburg, J and D L Kleinman (1987): "The Plant Germplasm Controversy", *BioScience*, 37(3), 190-98.

Laikre, L et al (2008): "Wanted: Scientists in the CBD Process", *Conservation Biology,* 22(4), 814-15.

Laird, S A and R Wynberg (2005): "The Commercial Use of Biodiversity: An Update on Current Trends in Demand for Access to Genetic Resources and Benefit-sharing and Industry Perspectives on ABS Policy and Implementation", viewed on 19 June 2010. (http://www.cbd.int/doc/meetings/abs/abswg-04/information/abswg-04-inf-05-en.pdf)

Prathapan, K D and P D Rajan (2009): "Biological Diversity Act, 2002: Threat to Agricultural Production and Food Security", *Current Science,* 97(5), 626-29, viewed on 19 June 2010. (http://www.ias.ac.in/currsci/sep10200 9/626.pdf).

Prathapan, K D et al (2006): "Biological Diversity Act, 2002: Shadow of Permit-Raj over Research", *Current Science,* 91(8), 1006-07, viewed on 19 June 2010 (http://www.ias.ac.in/currsci/oct25 2006/1006.pdf).

– (2008): "Death Sentence on Taxonomy in India", *Current Science*, 94(2), 170-71, viewed on 19 June 2010. (http://www.ias.ac.in/currsci/jan25 2008/170.pdf).

Rajan, P D and D Prathapan (2009): "Shared Ownership of Biological Resources", *Science*, 324, 1014-15.

Rosendal, G K (2003): "Interacting International Institutions: The Convention on Biological Diversity and TRIPS – Regulating Access to Genetic Resources", paper presented as part of Interaction between International Institutions: Synergies and Conficts, 28 February.

– (2006): "Balancing Access and Benefit-sharing and Legal Protection of Innovations from Bioprospecting Impact on Conservation of Biodiversity", *The Journal of Environment & Development*, 15(4): 1-20.

ten Kate, K and S A Laird (2000): "Biodiversity and Business: Coming to Terms with the 'Grand Bargain'", *International Affairs,* 76(1): 241-64.

Walt, V (2008): "The World's Growing Food-price Crisis", *Time*, 27 February, viewed on 19 June. (http://www.time.com/time/world/article/0,8599,1717572,00.html).

Wynberg, R, R Schroeder and R Chennells, ed. (2009): *Indigenous Peoples, Consent and Benefit-sharing: Lessons from the San-Hoodia Case* (New York: Springer).