

Seeds of contention, control or diversity?

Global rules, intellectual property and the future control of food

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Seeds are right at the base of our food system. If we don't have the right kind of seeds and if we can't keep breeding seeds to keep pace with the changes in climate and pests and diseases then we'll be in trouble for the future. But seeds have become a place for real debate and contention in the last 15 to 20 years. Some people are concerned about whether they genetically engineered. Some people are concerned about whether there's enough biodiversity and some farmers in some countries are worried if they're gonna get sued because they've accidentally grown seeds that contain genes that other people have patented where that's been allowed. So this is an area of real debate today and concern how it going to affect the future of our food and our ability to feed ourselves.

Now I got involved with this and ended up helping to produce a book that helps you try and understand this, called [The Future Control of Food](#), which is a guide to these international rules and negotiations on biodiversity, intellectual property and food security because the people I was working with mostly negotiators in the World Trade Organisation wanted to get a much better picture of how these different things come together in the different institutions where we're having these negotiations happen. So in this talk I just wanna give you a sense of that and some of the big picture issues but I hope you'll go and have a look at the book and the other materials - and you can download the book for free in English and Spanish and now in Chinese.

Part 1. Convention on Biological Diversity (CBD)

Probably the best known of these international negotiations resulted in a thing called the Convention on biological diversity and that came out of the Rio Earth Summit in 1992 – or to give it its full title the United nations conference on environment and development. Now when that was being negotiated it come out of a range of different concerns. For some people the big concern was how we do we conserve the biodiversity we've got in the world – 'cause we're seeing the biggest mass extinction since the dinosaurs today and we need to be doing something about that. Another of the concerns was how do we make sure we can sustainable use what we've got. We don't want to lose any more but we want to be able to use what we've got. And the third concern which came up particularly from developing countries was how do we share the benefits from using this fantastic diversity on the Earth and one of the reasons they had a real concern was that sense that if you look at, say, most of the drugs in the world many of them have come out of being developed from plants or compounds in plants that are in tropical forests mostly in areas where developing countries are but they get very little or nothing back from the fantastic amounts of money that's made out of these. So there was this mixture of concerns that went into creating this Convention on biological diversity.

Now when they negotiated it there were quite a lot of issues they couldn't kind of agree on. So one of the things they said is Ah, we need to figure out an agreement on access and benefit sharing. Now actually that took till just a few years ago, nearly 20 years. They also had to decide what do they do about genetically engineered organisms - which they call living modified organisms. And they said we need to negotiate a protocol that deals with these and that became the biosafety protocol or to give its proper name the Cartagena protocol because it was agreed in 2000. That took a lot of negotiation as well. So we have today in the mid 2010s a whole set of rules affecting the use and exchange of biodiversity.

Part 2. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

Now the people who did the negotiating around the Convention on biological diversity came from the environmental sector and they tended not to think so much about agricultural biodiversity and how it's really rather different because that has been developed over thousands of years by millions of farmers selecting seeds selecting different breeds of animals suitable for their environment and that was a big issue that they had to address. The other thing they had to take account of was that this Convention on biological diversity really sees, erm, this has been about a bilateral relationship one country with another agreeing how you exchange genetic resources how you exchange plants and so and then you need contracts around that. But in fact the way agricultural biodiversity has developed is by farmers sharing and exchanging freely seeds and materials and cross breeding animals and so on. And they're already existed when CBD was negotiated an undertaking on plant genetic resources for food and agriculture and that was based in the UN Food And Agriculture Organisation which has its headquarters in Rome.

So what had to happen was this undertaking then had to be renegotiated and turned into a treaty that was compatible with this new convention. And that gave the negotiators really quite a challenge because it's a fundamental different approach that they had to connect and indeed what they did and it took them seven long years of hard negotiations they came up with an idea that look what we need to do is for food and agricultural crops - crops that are used, that we need to eat - that we're going to create a special space and we're gonna really try and maintain this idea that in this space it is a Commons where we can freely share things. So they created for a whole range of plants for food a, a list in which they called facilitated access is given to this list so you can easily exchange it. You don't have to go through this bilateral by contract business. They also said that we're going to have to negotiate a simple contract agreement a standard material transfer agreement - it's like a click wrap on a piece of software - if you asked for some seeds from someone in Peru and they can send them over to erm I don't know, Turkey, then you just say yes we agree you don't have to negotiate anything and part of the issue in negotiating this material transfer agreement was that you couldn't take out any form of intellectual property on this material as it was sent out. and in fact issues around intellectual property had been at the heart of a lot of the big debates both in the convention on biological diversity and in the negotiations on this new international treaty.

The other thing that the international treaty did was recognise a thing called farmers rights - that actually the people who developed the fantastic range of agricultural

biodiversity we've got were the farmers around the world, especially small farmers living in difficult and different environments. so you have this new treaty and you have this Convention on biological diversity and both had been affected in negotiations by this stuff called intellectual property. And the reason for that was rules on intellectual property have been introduced into another set of negotiations that were going on at the same time that led to the creation of the world trade organization.

Part 3. Intellectual property and the World Trade Organisation

What is this stuff called intellectual property. Well, it's things like copyright, patents, trademarks or plant variety protection and a few other things as well. Now this stuff called intellectual property has been a really contentious issue between developing and developed rich and poor countries for many decades. In the 60s and 70s when there was talk of trying to have a new international economic order one of the key areas developing countries wanted to see reforms in were the rules over things like patents and copyright. But when these things were pushed to be introduced into the World Trade Organisation to this agreement the trade related aspects of intellectual property right TRIPS there was strong resistance from those countries who were aware of this issue but in the end they lost. Now why does this stuff called intellectual property matter so much. Well one of the reasons is it really is about who has wealth and power. But the thing is you can't see it. It's not like gold or oil, erm, and actually for most of us most the time were not really aware of it. Perhaps the most common thing most of us are aware of are a kind called geographical indications. If you buy something like Champagne or Parma ham that is covered by a protection that it can only be produced in a particular area in a particular way and that is a kind of intellectual property or trade secrets another.

Listen to this quote from the Gowers review:

“The contents of a jar the lid and seal may be protected by patents. Registered and unregistered design rights can also protect the lid and the shape of the jar. Copyright can protect the artwork in labels and trademarks can protect the shape of the jar, labels, colours used, and brand names.

Now he was talking about particular brand of coffee but in fact in the industrialised food systems of today intellectual property pervades them in all kinds of places. And that's why this stuff is really quite important for the future.

Broadly speaking there are really two different uses of intellectual property in the system. The first is used by people who are selling to consumers - you and me buying things. They tend to use stuff like trademarks that underpins brand so that helps them advertise stuff, copyright and so as you heard describing that jar of coffee or from the Gowers review. The other type of intellectual property is used more by people selling to farmers or maybe to you a gardener. If for example you buy a rose today you might find a little label on it that says you can't propagate it. Now the reason for that is covered by another kind of intellectual property right called a plant breeders right, which is a form of plant variety protection. The other big area is the use of patents who've been extended into covering living organisms in a way that was never envisaged when they were developed and which has happened since the mid 1980s only in some countries where they've allowed this - initially in the United States where there was a decision to allow the patenting of a microorganism in 1980 and then plants and animals later that year

and then why that is really important is that you would not have seen the development of genetically engineered crops by big commercial businesses without their ability to have a patent that gave them control over this product. So control is a key issue around this.

In reality they're not really intellectual property rights, that's a misleading term as Peter Drahos argues. We should think of them as privileges. These are privileges granted by society to some people to exclude others from things. Copyright allows me to say you shouldn't copy my work or patents allow the patent holder to say you can't use what I've invented without paying me or my permission and it excludes any other user from that. So these are really quite powerful instruments and they are in fact a form of business regulation. Erm, so they're not actual property you can't really see them in any real sense like oil or gold and also the term rights is misleading because they can be confused with human rights. Now they're not. Human rights are inalienable you cannot divorce them from the person and they're the subject for the individual. Intellectual property rights are actually privileges which some people can have and even corporations can have - completely artificial creations which have no real existence in the sense of being like a human person but they can have them as well.

So they're quite confusing things in some ways and also as Peter Drahos talks about today with this extension of a patent regime globally what they also tend to do is create system for private taxation because they allow you to charge what price you like in any jurisdiction 'cause you can stop products moving from one place to another because of the rights that you are given now, er, by the patent regime. And it's one reason erm that developing countries were very concerned about these rules being pushed into the World Trade Organisation because historically all countries have had or are not have rules on copyrights of patterns according to what was in the national economic interest. And the Americans for example will allow for the foreign authors copyright in the 19th-century, which Dickens complained bitterly about. Erm, many European countries didn't have patent regimes for quite a long time they took inventions in other places and re-examined them and rebuilt them in their countries and they mixed and match to suit them and what's happened by introducing these rules into the World Trade Organisation is putting a minimum standard a bar below which you cannot be. It's like saying anyone could have a size 8 shoe or a 10 but sorry you cannot have shoe sizes that are size four or the option not to wear shoes and that's something that Ha-Joon Chang a Cambridge economist calls kicking away the ladder. Kicking away the way in which a lot of currently rich countries used to get rich to develop. So there's a really big set of issues around intellectual property, which are far more than I can go into here.

Our concern is what's their impact on the food system where they've never been before and all the work I used to do in the 60s and 70s and when I edited food policy and we talked about the green revolution and all the plant breeding and agriculture extension had none of these problems about dealing with it. Materials could be freely shared. So we really are in quite a new world, which is only just beginning to be understood and its impact felt. The World Bank in its development report in the late 90s pointed out that these intellectual property rights or what I sometimes called IMPs intellectual monopoly privileges actually have real effects. They tend to shift market power. They tend to favour the bigger players for example with patents unless you've got a big lawyer and a big wallet to fight your corner, it's very difficult to protect your patents. Erm they also tend to lead to higher prices for example if you got a patent in product

and you can't charge high prices for it - and this very clear in the pharmaceuticals industry which is perhaps where the most focus has been on intellectual property and how it affects the price of medicines and access to medicines - then you then your patent isn't working, and you see one things, drugs go off patent then price goes way down. So we know it has a real effect on the world. Another area they tend to do is facilitate erm anti-competitive practices like cross-licensing or tying sales in. I mean think of a crop that has a genetic engineered characteristics that ties you into buying the particular herbicide at that crop is tied into that's a tied in sale, there's lots of things that really mean IP shifts the way the world works and alters who gets what out of the system.

The other thing is they're tending to increase the cost of access to knowledge and this is the area of copyright where today it's much easier to exchange knowledge and information than ever before but if it goes behind a firewall in a digital environment then it's difficult to get access to this knowledge and that can be knowledge maybe to do with science, to do with food and farming or any field so they're really important to have a structuring the world.

And why they matter - because they've gone into the World Trade Organisation - is that is an organisation that nearly every country is in. So they've been brought into food and farming in a way that's never happened before. And one of the key tiny little clauses that has made this absolutely central is something called article 27.3(b) of the TRIPS agreement and it talks about members of the World Trade Organisation. It says :

“Members may also exclude from patentability... plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. The provisions of this subparagraph shall be reviewed for years after the date of entry into force of the WTO agreement.”

Now is that clear to you? – cause if it is you've probably not understood it. As one negotiator said at the end of this, and this is strong language for negotiators, there was blood on the floor at the end of negotiating clause because really it's a piece of what they tend to call constructive ambiguity. It means different things to different people. Where you can go back to your capital and say look we Europeans didn't want patents on everything so we've got this clause in about non-biological processes but and so on you can go back to your capital and say actually we kept out, er, UPOV, I'll talk about that in a minute, erm, you can also go back and say look we got an option of going back in four years to get what we really want. And that you find in lots of agreements where there's a really contentious issue they put a clause in and say will go back and think about it in four years and revise it. Cause some countries were hoping to go back and remove that exception to patentability completely. Erm, that hasn't happened.

It hasn't happened partly because developing countries got more interested and a lot of people started raising questions about what's this going to do to our food system to our farming systems in the future. For many civil society groups and farmers groups in the developing countries the concern has been about who will control seeds how will this play out in the push to re-engineer all plants and animals so that there actually owned and managed and run by just a few companies. How will it affect the agricultural biodiversity we've got and maintaining that so there've been a lot of concerns raised

since this was, er, negotiated because these things are negotiated in places a very long way from where most of us live. Whether we're talking about small farmers in India or even whether we're talking about consumer groups in, in, in rich countries. They're negotiated in distant places by governments who are juggling many different things. And one of the reasons this got into the World Trade Organisation was that the big things developing countries wanted were concessions on agriculture and textiles and they weren't so bothered or many of them weren't so clued up about what this meant and those that did couldn't carry the day, so this got in.

Part 4. The UPOV Convention

Now it wasn't until this TRIPS agreement that an earlier agreement that had been developed in Europe came to matter for the rest of the world and that agreement was an agreement that created so-called plant breeders' rights and this goes back to the way agriculture developed in Europe over centuries or so when you'd see the development of professional breeders and an industrialisation of the food system. And it became unlike most of the rest of the world where small farmers still continue to breed and exchange their seeds. But there's a problem when you've got professional breeders involved in the seed system and that is seed grows on its own and reproduces itself, so you need to find ways of getting people to come back to buy from you. One of those ways has been the development of hybrid seeds for some crops and they are seeds that don't reproduce truly so you get the good high yield the first year and then it drops and it's a more mixed kind of crop you get. The other way is to try and change the law so that people can't do what they naturally would do, which is save and exchange seeds.

And that led in Europe to the creation of a thing called UPOV, which was the International Union for the Protection of New Varieties of Plants. And that came out of long decades of negotiations and discussions and was only signed up to, to a very few European countries when it started in 1961 and it's been revised two or three-times since. This UPOV convention has become important now because it is a form of *sui generis* Plant variety protection which was mentioned in that article 27.3(b) but it is not required by the TRIPS agreement for developing countries to sign up to and that was a very deliberate position taken in the negotiations and it isn't there because developing countries didn't want it to be there. They wanted bigger options and signing up to this system that was designed for a really industrial agriculture in the rich world.

Now UPOV has a whole set of issues with it that some people are concerned about. One of which is what's 'new' because under UPOV you can take a seed from one country take it to another where it is new and then take out a plant breeder's right on it. And so that's a bit of a contentious issue for some. Its great advantage though over patents where you can restrict what's done with it is that any breeder can take an already protected variety to breed from to create a new one so that that is more flexible. And even in Europe where there are plant variety breeders and firms who are very keen on UPOV they still don't want patents because they know what you get the patent system will be much harder for them as small breeders to continue. So even within the industrialised world there's a difference in view about which is the best system to use.

One of the major issues is how is all this complex mix of rules going to affect the future structure of the very base of the food system. Who'll own what kind of companies? Will they be concentrated in just a few companies? Will it drive a particular direction of science or to focus on genetic engineering rather than of the ways of dealing with

problems. And as that World Bank report pointed out in the late 90s these rules do tend to shift and alter the market structure. And what we have seen is a real development of mergers and acquisitions over the last 15 to 20 years as a recent UN report pointed out and this is actually starting to restructure the world as far as it goes around the seed systems. And I'll just quote you a bit from that UN report:

"In some jurisdictions, the privatisation and patenting of agricultural innovation has resulted in a drastic erosion of these traditional farmers rights and the assertion of proprietary lines on seed technologies and genetic contents has changed farmers from seed owners to mere licensees of a patented product"

Phil Howard from Michigan State University has done a really dramatic illustration of how these legal changes have helped influence the restructuring of the seed business from the bottom up since the mid-90s, and you can see in the way he shown how former chemical companies which are the companies he put up in Red, in big red blobs, have all kinds of linkages out now and have bought or got relationships with lots of seed companies around the world.

Alongside this restructuring of the industry the base and also a shift in funding from the public sector more to the private sector to develop R&D, and the public sector only doing research that only people with big research labs can benefit from rather than what small farmers can benefit from, has seen this restructuring and perhaps shift in the kind of focus of where R&D goes. And there's a real set of issues around are we asking the right kind of questions in the science today. Are we narrowing the focus down so we think more and more about just the plant and the seed and restructuring that because that's what you can protect rather than thinking about the whole farming system - so that might be water management, soil management, preventing soil degradation etc - as being the range of science that we need to do in the whole area of food and farming

Part 5. World Intellectual Property Organisation (WIPO)

Before I reflect briefly on what we might have learned from all these negotiations, I want to ask if it might seem strange to you that there's a whole body in Geneva called the World Intellectual Property Organisation and why that wasn't the place all this stuff and intellectual property was discussed rather than pushing it into the World Trade Organisation, which is about trade liberalization, and which is not what intellectual property is about. And one of the core reasons for this is that in this World Intellectual Property Organisation, which is a UN body, erm, although it tends to see itself as representing the interests of patent holders and the interested professionals many would argue rather than the general public good globally, if you have an agreement in there then you can sign up to it or not as you wish. So you could have had this TRIPS agreement there but maybe just 10 or 20 countries would have signed - and that wasn't what a whole set of industries whose business models in many senses have been made obsolete by real technological innovation, revolution - the businesses who deal with software and film and music and pharmaceuticals, who depend upon a really strong intellectual property regime for their economic success - those institutions in a world of increasingly global markets wanted a place to put information and rules of intellectual property that was gonna be global in its reach. And that's why they didn't want it to go into this talking shop about intellectual property where you don't have to sign up to any of the agreements that were made and they wanted it into this new body the World Trade Organisation.

The other key reason they wanted to have these rules in the World Trade Organisation was because it is unique amongst the international organisations. If you take no notice of the rules in the Convention on Biological Diversity or this International Treaty on plant genetic resources there's no sanctions, there's no comeback on you. That's not true in the WTO. This is a club, you join as a country this club and you accept its rules and its rules override any rules you might have. And if you don't follow its rules there is a binding dispute settlement system built into the WTO and it's backed by sanctions. And that means if you're found in breach of their rules you either have to change your rules, or face fines or have sanctions taken out against you. And that's happened in many disputes since.

So now we've got a really heavyweight international body. So TRIPS has put intellectual property into hard law, whereas these other bodies are what they call soft law - they're not as enforceable as you have these rules and the World Trade Organisation. and now we have not just the WTO we've got WIPO we've got the convention on biological diversity, we've got the international treaty, we've got a really complex international environment in which anyone working in food and farming has to deal with very much more than when I started work with food policy and when I worked in agriculture extension in 20-30 years ago so this is really quite difficult. Most of us can get some kind of handle on what our own national framework is, we can see with a big actors are, what the political interests are.

It gets much more difficult when you look at this kind of big international framework, where you've got intergovernmental bodies, UN bodies, the CBD, the international treaty, WIPO all the UN bodies - the WTO, it's not a UN body you got other bodies like UPOV, and a whole group of international research centres that kind of sit out there a bit separately and so you've got this really complex mix in which people having to negotiate. and one of the things that's done it makes it very difficult for the weaker players for the smaller players, for the farmers groups, for the non-governmental organisations. It also means if you can't get your act together or if you're forced to negotiate bilaterally and one of the things that's happened since the World Trade Organisation has been agreed is that increasingly the big powers that didn't get everything they want have started doing bilateral trade negotiations, free trade agreements, investment agreements. And very often one of the key bits they put into those agreements is on intellectual property and upping the levels of protection required. So in those agreements you'll find some countries are being pushed to allow patenting on everything or to use UPOV as the way to deal with plant variety protection and that is not what developing countries wanted and wanted to achieve when they negotiated collectively in the WTO.

So we've got a really much more difficult world to operate in today. And more complex set of rules. But again they are rules that we made up. So they may also be remade up. And that's one of the questions that will arise as we look at how will these rules be revised when we see them working out in practice. And if they're starting to undermine the fundamental systems we need to preserve - our agricultural biodiversity, to maintain the small farmers - maybe that's time to rethink them whether it's in the new version of UPOV, or whether it's in rethinking the rules that we have in some of these other organisations.

Part 6. Responding to change

One of the things that has happened though since we've seen this big global rule change is much greater interest and concern about what happens at this international level and how it affects our everyday lives. And we see more and more groups civil society groups, farmers groups, starting to think about whether or not the way this helps concentrate corporate control is a good thing. We've seen people starting to move up saying food sovereignty is an issue, we want to have control over food systems, we don't want to be stopped from having the ability to exchange seed and so on. So we are seeing a response from the bottom up and it's important that this becomes more publicly discussed and then that we seek to say okay we've changed the rules once, maybe we can change them again if they're not delivering that public good which is why we have these kind of rules – they're not the just for the private interest of the few to manage and control the system in their interests. And we know we can have an effect as civil society groups. We've seen it in quite a big way around the issues on TRIPS and public health and access to medicines. And that's perhaps the area it's been the most public. But we only medicines when we were ill. We actually need food all the time, so we can't let this kind of just gently slide into the food system and restructure it, if it does it in a way that is not going to be beneficial for us all in the long-term.

But that also means getting to grips with the reality of the way these negotiations happen. This is not a level playing field. If you think of a football pitch, think of the pitch like this with the centerline down here okay the best players, best team is playing this ways, the weakest players are playing that way and they haven't even got a proper centreline - even if it was level it wouldn't be fair, so one of our key challenges is how we get more fair representation and rules that support everyone and creating a food future which enables the flourishing of the food system that we need.

All these changes have not gone without a reaction. One of the things that we've seen in the last 15 to 20 years is growing concern by citizens groups all over the world about their impact on the future control of food, on the concentration of power at the very base of our food system. We've seen concerns about the patenting of lifeforms on whether it's a sensible thing to do. Whether we need to rethink how we reward innovation and that extending a system that was designed really for mechanical inventions in the 19th century into the basis of life in the 21st-century is the right way to go. So we've seen some really positive responses. All around the world there are farmers movements talking about the need for more local control over the farming systems and don't want to be squeezed out of farming but want their lives improved and they're coming together in the food sovereignty movement and they are concerned about how they will be able to share and exchange knowledge and seeds.

So what are we left with at the end of all of this. Well, I think the central thing is we have a set of rules that are now global around intellectual property that were made up and pushed in the late 20th century by relatively few vested interests that are now structuring what happens in the 21st-century and deeply affecting what happens in our food system and I don't think that they're right rules. Our challenge is to get the right rules to support what we need for food and thriving people this century.

[See website for further reading]