

Prudence versus Pressure at the Seed Treaty

Will the critical need to address digital sequence information break the Seed Treaty's effort to fix its benefit sharing system? It probably should.



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Acronyms and abbreviations

AHTEG	Ad Hoc Technical Expert Group
BSF	Benefit Sharing Fund
CBD	Convention on Biological Diversity
DSI	digital sequence information
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
MAT	mutually agreed terms
MLS	Multilateral System
PGRFA	plant genetic resources for food and agriculture
PIC	prior informed consent
SMTA	Standard Material Transfer

Introduction

In November 2019, the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) will meet in Rome for its eighth session. High on its agenda will be the question of access and benefit sharing in relation to digital sequence information (DSI). The Governing Body will consider DSI both within the context of the six-year effort to revise the Treaty's Standard Material Transfer Agreement (SMTA) – which governs sharing of seeds in the Treaty's enormous Multilateral System (MLS) of crop seeds – and as a separate full agenda item.

At the most basic level, at issue is the question of how to ensure the Treaty stays in step with modern modes of sharing and using genetic resources. Contemporary reality is that, rather than sending packets of seeds by airmail, plant breeders and other users of agricultural genetic resources often send genomic and protein sequences, epigenetic information and other data, collectively referred to as DSI, around the world via e-mails, uploads to internet databases, and similar means. All of the latter access and use of genetic resources is presently outside the bounds of the legal language of the Treaty's SMTA, imperiling the Treaty's objective of benefit sharing. Thus the SMTA must be updated to include DSI if the Treaty is to be a viable benefit sharing agreement.

But the challenges loom very large. While there is strong pressure to fix the Treaty's failing benefit sharing system, there is a lack of policy guidance on DSI from governments. Thus, the small group that has been working to revise the Treaty's SMTA hasn't had any decisions from the Governing Body or the Convention on Biological Diversity (CBD) around which to structure its approach to the provisions of the SMTA and, as a result, the Treaty's Working Group on the MLS has thus far failed to come to terms with the issue.

There is a danger that at the Governing Body Contracting Parties will adopt a newly revised SMTA that does not properly address DSI. Such a SMTA would be a white elephant, a complex and outmoded antique before its ink even dries. If negotiations do not make

progress on DSI at a breakneck pace at the Governing Body meeting, Parties to the ITPGRFA must not succumb to pressure to adopt a half-baked "solution", which could be disastrous for the interests of the South and small farmers and indigenous peoples and local communities (IPLCs). Instead, they should delay any new SMTA and focus on forging policy guidance on DSI that can be incorporated into a revised SMTA to be adopted in the future.

Overview of intergovernmental work on DSI

The issue of DSI in the context of the Treaty was first formally raised by the Executive Secretary of the Treaty at the Fifth Session of the Governing Body in Oman in 2013. At the time, before the CBD began using the term "digital sequence information" as a placeholder, questions around DSI were referred to in the Treaty by the term "dematerialization".

The opening of the Treaty's discussion on DSI and access and benefit sharing in Oman was paralleled by discussions on DSI in public health that also began in 2013 in the World Health Organization's Pandemic Influenza Preparedness (PIP) Framework. In the WHO context, DSI often continues to be referred to as "genetic sequence data", or GSD.

At the CBD, DSI is now a major agenda item. The present CBD discussion of DSI arose initially at the 2015 meeting of the Ad Hoc Technical Expert Group (AHTEG) on Synthetic Biology, which identified the potential for DSI to allow the use of genetic resources without benefit sharing. In 2016 in Mexico, the issue was elevated to the status of a separate agenda item in its own right. The subsequent Conference of the Parties (COP) meeting in Egypt set the Convention on a course towards seeking resolution of the issue at its forthcoming meeting in Kunming, China in late 2020. The Kunming meeting will be preceded by technical meetings, followed by an Open-ended Working Group session that will consider DSI, expected to take place in July 2020 in Colombia.



Photo credit: Ghana Genebank, Bunso

Several previous reports prepared for intergovernmental meetings have detailed many types of DSI and its use in different sectors. For biodiversity broadly, the AHTEG report¹ on DSI and related CBD records² provide an overview. Similarly, for agriculture in general (i.e. including animal, aquatic, microbial, and other genetic resources), the Commission on Genetic Resources for Food and Agriculture has published an extensive paper detailing many types and uses of DSI,³ as well as extensive information and analysis provided by the Secretariat.⁴ More specifically for plant genetic resources for food and agriculture (PGRFA), for the November 2019 ITPGRFA Governing Body meeting, the Secretariat has prepared a compilation of submissions from Parties and other

stakeholders⁵ that, for the most part, reiterate established positions. Several reports on DSI in relation to viruses⁶ have been prepared by WHO, including a 2016 report of a WHO Technical Working Group on influenza genetic sequence data, which notably concluded that virus DSI would optimally be shared via databases that utilise a data access and use agreement containing benefit sharing provisions.⁷ Current WHO study of access and benefit sharing issues in relation to pathogens more generally (i.e. beyond influenza) will likely lead to increasing consideration of DSI at the WHO in coming years and, indeed, it has been proposed that the WHO PIP Framework may eventually be recognised by the CBD as a Specialized Instrument under the Nagoya Protocol.

1. The report of the AHTEG, CBD/DSI/AHTEG/2018/1/4 can be found at: <https://www.cbd.int/doc/c/4f53/a660/20273cadac313787b058a7b6/dsi-ahteg-2018-01-04-en.pdf>

2. The home page of the CBD's work on DSI is available at: <https://www.cbd.int/abs/dsi-gr.shtml>

3. CGRFA Background Study Paper #68, *Exploratory Fact-Finding Scoping Study on "Digital Sequence Information" on Genetic Resources for Food and Agriculture*: <http://www.fao.org/3/CA2359EN/ca2359en.pdf>

4. CGRFA 17/19/4 is available at: <http://www.fao.org/3/my588en/my588en.pdf>

5. IT/GB-8/19/16.1/Inf.1 is available at: <http://www.fao.org/3/na770en/na770en.pdf>

6. WHO PIP Framework DSI page is available at: https://www.who.int/influenza/pip/advisory_group/gsd/en/

7. PIP Advisory Group on the Sharing of Influenza Genetic Sequence Data. *Optimal Characteristics of an influenza genetic sequence data sharing system under the PIP Framework*, 22 June 2016, p. 15. Available at: https://www.who.int/influenza/pip/advisory_group/twg_doc.pdf

So, where are we going?

After bursting onto the agendas of international organisations concerned with health, agriculture, and environment in the mid-2010s, as the decade closes the question of DSI is at an impasse. This situation will generate increasing frustration among developing countries and civil society.

Across the forums considering DSI, in geopolitical terms, the positions of countries and regions are similar. Developed countries are trying to avoid accepting that any sort of information related to biodiversity, even direct genomic sequences, falls under access regimes. They thereby seek to preserve free access to DSI in “no strings attached” databases. Developing countries generally reject the wealthy countries’ position as self-serving and plainly anachronistic in the face of rapid technological developments in sequencing, “-omics” disciplines, bioprocessing, artificial intelligence, and genome editing. Generally speaking, the Global South is of the view that developed countries are blatantly seeking to advance the interests of their biotech industries, while benefitting from free access to DSI, as they are in the best position to leverage it into commercial products.

Developed countries argue that definitions contained in treaties, including ITPGRFA, that refer to “material” exclude DSI, because, they claim, “material” must be a physical sample in biological form and cannot include DSI stored digitally, on paper, or in other formats. Developing countries say that the reality of technological advances must be recognised and addressed in order to keep agreements viable. Many developing countries also point out that they have never separated DSI from genetic resources in its biological form. For example, the Andean common access regime (Decision 391),⁸ adopted in 1996, clearly includes DSI in its scope. And, as summarised in Argentina’s submission to the Governing Body,⁹ a series of meeting reports prepared

during the negotiation of the CBD reflect consensus that access under the Convention includes access to information. Between the South’s determination to address the issue of benefit sharing for DSI and the undeniable reality that the use of DSI can enable evasion of benefit sharing obligations, the Treaty – and CBD – must inevitably reach a deal on DSI if both treaties are to survive as viable international instruments. If no deal is reached, as access increasingly tilts toward obtaining and using resources in the form of DSI, the situation will eventually arrive at the point of breaking the key underlying *quid pro quo* of the agreements – that access is provided in return for fair and equitable benefit sharing.

Thus, one way of looking at it, is that the North is engaged in a rear-guard action, which it hopes to drag out for as long as possible. For so long as no deal is in place, its companies and others can continue to accumulate sequences for “free”. The obvious endgame for the North, when the pressure becomes too great, is to submit to the weakest deal it can get that keeps the CBD and ITPGRFA intact. And that deal, for the North, would, as far as possible, keep all of the sequences obtained to date outside or on the fringes of any new benefit sharing arrangement.

In this scenario, databases like GenBank, Japan’s DNA Data Bank, the European Nucleotide Archive, and thousands of others could end up as huge “*ex-situ* DSI collections”, hosting materials of a variety of provenances and controversial legal status (with respect to benefit sharing), much in the same way that “temporal scope” and the status of many materials in botanical gardens, microbial depositories, and other *ex-situ* collections has dogged the CBD as a controversial and unsettled issue for decades.

In the case of DSI, however, unless the ITPGRFA’s Contracting Parties get it right, there is the possibility that such a situation could unfold for the materials *inside* the multilateral system (MLS), locking sequences

8. Commission of the Cartagena Agreement: Decision 391. *Common Regime on Access to Genetic Resources*. Available in English at: <http://www.sice.oas.org/trade/JUNAC/decisiones/DEC391e.asp>

9. See page 4 of Argentina’s submission (in Spanish) contained in IT/GB-8/19/16.1/Inf.1 (page 36 of the unnumbered PDF). Available at: <http://www.fao.org/3/na770en/na770en.pdf>

in limbo, enabling their use often (or always) without benefit sharing, even while MLS users remained obligated to enter into the SMTA, in order to access the same seed. And if potential MLS users can access the agricultural diversity they are seeking in “no strings attached” databases, this will have an insidious knock-on effect of discouraging use of the SMTA and, thereby, reduce benefit sharing for seeds from MLS gene banks. The logic for industry could become “Why sign a SMTA to access the seed and pay into the Benefit Sharing Fund (BSF), when we can access the material as a sequence for free?”.

A key element of Northern anxiety over the DSI discussion, at least ostensibly, is the fear that benefit sharing for DSI will lead to a requirement for users to obtain Nagoya Protocol-style prior informed consent (PIC) and mutually agreed terms (MAT) for all sequences. Since some biotechnology techniques, breeding and other processes involve the use of hundreds or thousands of sequences, the North argues that obtaining PIC and MAT for each one individually is too complicated and, therefore, the best that can be done is for DSI to continue to be free.

Such fears are exaggerated. While it is true that governments – and, to an extent, through the CBD’s Article 8j, indigenous peoples and local communities – have an existing right to insist on PIC and MAT at the level of each use of individual sequences, and can enforce that right through contracts, there is also wide recognition that more practical, scalable, and cooperative approaches are desirable, potentially up to and including the development of a Global Access and Benefit Sharing Mechanism, that is, a multilateral system for (at least some) DSI, as foreseen in Article 10 of the Nagoya Protocol.¹⁰ So, even though nobody is demanding evidence of PIC for every use of every sequence, it is convenient for developed countries and industry to raise the fearful spectre of such a situation, because it makes

the North’s efforts to delay a deal seem more reasonable to the unsuspecting. Such exaggerated fears may be raised again when the Governing Body begins its discussion on DSI in November 2019.

In the context of the Treaty, Nagoya-style PIC and MAT is substituted for in a uniform fashion in the MLS through the SMTA. This could greatly simplify DSI matters for ITPGRFA, but, problematically, so far there is no agreement to truly integrate DSI into the SMTA, because developed countries continue to shy away from explicit acknowledgement of a benefit sharing requirement for DSI.

So, DSI remains stuck in limbo, even as the moment of truth approaches, after a six-year effort to revise the Treaty’s SMTA. Of note, other Treaty efforts, such as the Global Information System (GLIS) and Digital Object Identifiers (DOI) for PGRFA presently have no function in relation to benefit sharing, even if it can be speculated that, under the right circumstances¹¹ and with the support of a decision by the Parties, those efforts could be expanded and purposed towards being part of the solution for benefit sharing for DSI.

DSI and the Working Group on the MLS

For the Treaty to deal with DSI, however, first and foremost is the absolute necessity of the SMTA, the binding legal contract for MLS users, to include the necessary articles to implement the terms and conditions for use of DSI that are agreed to by Parties. The time to incorporate these provisions is now, while the SMTA is being revised. If the revised SMTA to be tabled for consideration in November 2019 doesn’t spell out what users can (and cannot) do with DSI – most importantly the

10. Article 10 of the Nagoya Protocol provides as follows: “Parties shall consider the need for and modalities of a global multilateral benefit sharing mechanism to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in transboundary situations or for which it is not possible to grant or obtain prior informed consent. The benefits shared by users of genetic resources and traditional knowledge associated with genetic resources through this mechanism shall be used to support the conservation of biological diversity and the sustainable use of its components globally.”

11. For example, so long as GLIS is only oriented toward “open access” in databases without a data access and use agreement that parallels the SMTA, it cannot serve a very significant practical function in resolving the DSI issue.



Photo credit: David McClenaghan, CSIRO

genomic sequences of MLS seeds – then companies will do as they please, and they will not act in the public interest.

On the issue of integrating DSI provisions into the SMTA, the Treaty is in a very difficult situation.

For six years, the Working Group has laboured to fix the SMTA, with the primary purpose of increasing user (i.e. company) payments into the Treaty's BSF. Progress has been slow and uncertain. At the 2017 Governing Body meeting in Kigali, at its Seventh Session, an initial text was rejected and sent back to the Working Group, and the 2019 version – due to be considered in Rome in November – may suffer the same fate.

And perhaps it should, unless great progress is made in a very short period. The Working Group has almost entirely dedicated its discussions to resolving issues related to access to seeds, not DSI. Thus, the limited discussions on DSI that the Working Group has held have been tentative and superficial, and have not resulted in a clear integration of provisions for DSI into the revised draft SMTA.

Thus far, Parties have been reluctant to explicitly acknowledge this glaring shortfall in the revised SMTA. If a SMTA is adopted that does not properly address DSI, it will likely be many years before the problem can be corrected, leading to mass DSI biopiracy in the interim. Of course, few diplomats want to be responsible for popping the Working Group's trial balloon that took six years to inflate, and perhaps this reluctance explains much about the present situation in the weeks before the Governing Body's November 2019 session in Rome.

Things might change, at least a little, when the Working Group holds its final session in late October 2019. But, since many other issues pertaining to seeds remain unresolved in the draft SMTA, it seems unlikely that the Working Group will be able to develop a robust solution for DSI.

To be fair to the Treaty and the Working Group, there are some important mitigating factors that help explain why the Working Group has not come to terms with DSI or, for that matter, engaged in the all-important task of putting those terms in written form into the SMTA.

First, the issue of the DSI of MLS materials is larger than the SMTA itself. That is because DSI has been generated for MLS varieties and, in some cases, placed online without proper consideration of benefit sharing issues. The International Rice Research Institute's regrettable actions in making thousands of MLS rice genomes "open access", with the support of the Bill and Melinda Gates Foundation and BGI (a Chinese genome sequencing company), are a prime example of this problem.¹² Other examples of questions that are potentially beyond the bounds of the SMTA are how to handle DSI that is generated under a SMTA after the SMTA has expired, or manage sequences generated by the MLS gene banks, themselves. Thus, resolving the handling of DSI under the Treaty is not limited to seeds that are newly sequenced by users, while they are operating under a SMTA. The Working Group has also lacked any operational guidance on DSI from other higher bodies. This is because the Working Group has arrived at the point of an urgent need to define practicalities of management of DSI in the SMTA, a legal instrument, before the Governing Body of the Treaty or the CBD have developed policy guidance. Thus, when it weighs the issue of DSI in the SMTA, the Working Group is, in effect, placed in the difficult and arguably impossible and inappropriate position of both deciding on policy in relation to DSI and implementing it in the SMTA.

Policy guidance forthcoming from the CBD might provide a roadmap for how to incorporate DSI into the SMTA. However, the CBD intends to take a decision on the issue at the next meeting of the Conference of the Parties in late 2020, too late for the November 2019 meeting, when the Governing Body will be asked to take a decision on the revised SMTA.

Similarly, the Governing Body itself will consider DSI in November 2019 as a separate agenda item from the question of the SMTA. In theory, and depending on how the meeting is organised, this discussion could rush a policy input to the group that will discuss the

SMTA, but such a process would be hurried, at best. And the Governing Body itself will also have need of the CBD's outcome, as the agreements need to be mutually supportive. This suggests that finalising the Treaty's policy approach to DSI is a matter for 2021 or even beyond.

Thus, in order that the SMTA operationally reflects the CBD and Governing Body's future consensus on DSI, the SMTA cannot be finalised, and the subscription system cannot be activated for at least two more years.

What should the SMTA say about DSI?

Though logic and sound procedure inescapably suggest that adoption of the revised SMTA should be postponed beyond the Treaty's 2019 meeting, it can be expected that there will, nevertheless, be a strong push to adopt the effectively incomplete document. This pressure will come foremost from industry and the North, especially Europe. These groups are eager to expand the Treaty's Annex to "all PGRFA" as a counter to the Nagoya Protocol,¹³ and they spy an opportunity to adopt a system that will keep DSI "free" for many years to come, as it could be a decade or more before the Treaty musters the energy to revise the SMTA yet again, in order to properly deal with DSI.

Others willing to push forward without dealing with DSI may include a few developing countries, typically ones with unusually well-developed national access and benefit sharing capacity; for example, Brazil, which has a relatively new national access law that its officials frequently express great confidence in vis-à-vis challenges such as DSI. But such a situation is a rarity in the developing world, particularly for smaller and less developed countries.

12. Li J-Y et al. (2014) The 3,000 rice genomes project: New opportunities and challenges for future rice research. *GigaScience* 8. Available at: <https://gigascience.biomedcentral.com/articles/10.1186/2047-217X-3-8>

13. For an in-depth discussion on the process of revision of the SMTA and possible expansion of the Treaty's Annex 1, please see the ACB Briefing Paper "Crunch Time for the Seed Treaty" (October 2019). Available at: <https://www.acbio.org.za/en/crunch-time-seed-treaty>

From the perspective of ensuring a sound agreement it would obviously be strongly preferable to postpone adoption of a revised SMTA until at least 2021, by which time well-planned and policy supported DSI provisions could be developed. If the Governing Body adopts a revised SMTA in November 2019, then there are a number of DSI issues that need to be defined in the SMTA text.

Can subscribers sequence seeds? If so, can they treat that DSI as proprietary? At a glance, the answer to the simple first question would seem to be “yes”, given that sequencing is increasingly a critical component of breeding programmes, especially commercial programmes seeking to find and integrate “new” traits from farmers’ varieties and other MLS materials. Yet, once this DSI is generated – not just of genomic DNA but also DSI such as epigenetic information – questions immediately emerge about its ownership and status, both during and after the expiry of the relevant SMTA (whether under the subscription system or via the single access mechanism).

Then, while a company may undertake the – increasingly trivial – investment of generating the DSI, if that DSI is, for example, the genomic DNA of an MLS farmers’ variety, on what basis could the company reasonably perceive that DSI as proprietary? After all, the genetic resource is part of the MLS, and the company neither created nor conserved it. Certainly, developing countries should not permit private entities to generate and hold captive the DSI of MLS materials.

If MLS users are not permitted to hoard DSI of MLS seeds, and they should not be, then what happens to the DSI? Should MLS users be required to deposit the data elsewhere or make it available to others? It stands to simple reason that this should be case, but if so, where?

Some might see deposit of the data in “open access” DSI databases, such as GenBank, as an option, but this is quite difficult to justify

in terms of benefit sharing obligations and would have the effect of undermining the MLS. First, if subscribers placed DSI in “open access” databases, then non-subscribers would be able to access and use that data without signing a SMTA. This could discourage subscriptions, especially in the long term, and it would be unfair to developing countries and farmers who are supposed to benefit from the BSF, and whose resources would be placed in the “open access” DSI database, free to all.

Allowing deposits of MLS DSI in “open access” databases strongly encourages gaming of the system, as there presently appears to be nothing standing in the way of a company, government or large foundation funding a non-profit organisation or a DivSeek-like initiative,¹⁴ from subscribing to the MLS, sequencing its material, and uploading the DSI of that material into “open access” databases. Since the non-profit is technically independent of the company(ies) and has no income from seeds sales, it would make no benefit sharing payments, even as it uploaded gigabytes of DSI into the free-for-all internet cloud that could, in turn, be used by companies in products.

It is rather more sensible that DSI of MLS varieties be made available under the terms of the MLS itself; in other words, the SMTA, or in the case of data, a Treaty database, or network of databases, that utilise a data access and use agreement that extends and implements the SMTA’s benefit sharing obligations to the realm of DSI access. This would leverage the Treaty’s MLS in a way that would keep genetic resources publicly-accessible and prevent the need for individualised PIC and MAT, while preserving the Treaty’s benefit sharing obligations. Companies that use MLS DSI, but do not access seeds from the MLS, would then be brought into the subscription system, thereby increasing benefit sharing and ensuring a level playing field for industry by preventing DSI freeloaders.

14. DivSeek (divseek.org) is a controversial international agricultural genomics project. More than 3,000 documents obtained by the author of this paper over a period of 18 months, under US Freedom of Information legislation, show that key players in DivSeek acted to avoid accountability and “exploit ambiguities” in the ITPGRFA, while actively courting multinational seed corporations such as Syngenta as part of its plans. See Hammond E (2017) *Thousands of Pages of DivSeek Internal E-Mails Released, Offering Detailed Insight into the Controversial Agricultural “Big Data” Project*. Available at: <https://www.twn.my/title2/biotk/2017/btk170302.htm>

Such a system of DSI databases would also provide an answer to the problem of what would happen if a company continued to profitably use MLS sequences after ceasing to access MLS seeds and exiting the SMTA. If benefit sharing obligations are applied to DSI through data access and use agreements, then companies could not continue to use the DSI without paying, since the continued use of the DSI would incur the same benefit sharing obligations as when accessing seeds. (Or, if the SMTA is well-designed, the obligations of the SMTA simply would not expire so long as the company continued to use MLS DSI.)

Covering DSI equally with seeds within the SMTA and through data access and use agreements for databases would also help to “future-proof” the Treaty by capturing new breeds of companies in the food and agriculture business that are unlike traditional seed companies. For instance, consider Benson Hill Biosystems, an American company, whose main product is “CropOS”, artificial intelligence software that aids breeding by combing through and comparing large collections of DSI. Says the company,

Nature, it turns out, is an incredibly generous and under-utilized source of genetic diversity that can improve food production and quality. We’ve built our company to enable innovators to collaborate and tap this diversity, wherever they may be in the food and agriculture supply chain.”¹⁵

Of course, what Benson Hill misleadingly calls “nature” is in fact frequently the product of the work of small farmers over millennia, and there is no greater collection of such agricultural genetic diversity than the MLS.

The rapidly growing bioprocessing industry that grows foods in industrial bioreactors relies on crop DSI, which it engineers into micro-organisms (or cells) in order to produce ingredients in fermentors similar to those used to brew beer. A well-known example of such a company is Impossible Foods, which produces soy leghaemoglobin in yeast in bioreactors. Beef-free “hamburgers”



made with the product are now being mass-marketed in grocery stores and fast food restaurants in the United States and elsewhere. Another example is Isobionics, recently acquired by the giant German chemical company, BASF, whose bioreactors produce constituent compounds of citrus crops, allspice (*Pimenta dioica*), and patchouli (*Pogostemon cablin*), selling a European-made industrial substitute for Asian and Central American export crops. The future will undoubtedly include many more such companies, and it is likely that their products, particularly as the industry matures and competing manufacturers emerge, will rely on DSI of plants with particular characteristics (for example, improved taste or ease of processing) to produce non-generic products.

Both companies like Benson Hill and Isobionics use agricultural genetic diversity and DSI for profitable food and agriculture purposes. Yet their incomes are mostly, or entirely, not from seed sales, nor is the value they derive from DSI necessarily eventually captured in the value seed sales by affiliates. This indicates a need to carefully consider the basis of payment calculations by such companies.

15. See: <https://benhill.com/food-production-innovator/>

At present and in the draft revised SMTA, MLS users are not free to transfer MLS materials to non-subscribers. This is obviously sensible, because it prevents freeloading. Yet there is no parallel in the draft revised SMTA for DSI, and no restriction on such transfers of DSI. Herein lies another way to game the system, similar to but not exactly like those previously mentioned. In theory (assuming the Consultative Group for International Agriculture Research and others provide the material), a single subscriber, perhaps a university or research institute without any seed sales, could leak every genomic sequence of every seed in the MLS, either into proprietary or “open access” databases, and not violate the SMTA; all without paying a penny in the benefit sharing. It is plain to see that the thorny and complicated issues related to DSI must be explicitly and carefully addressed in the revised SMTA. Presently they are not. And as long as this remains the case, adoption and implementation of the revised SMTA (and linked amendment) will be a fool’s errand, destined to end in disappointment for the South, farmers and civil society.

Conclusion: The value of discretion

Nearly everyone involved in the process of revising the Treaty SMTA feels strong pressure to reach a conclusion. After all, the process has been ongoing for six years. The North will try, but it cannot earnestly pretend not to understand that, from the perspective of fairness, the Treaty is a flawed instrument that is failing to deliver on benefit sharing and farmers’ rights. Yet it cynically hopes that, by dangling the possibility of a little money flowing into the BSF, it will gain enough leverage to make the fundamentally imbalanced system even larger through an amendment to expand the Annex.

The South, often alongside civil society, is deeply frustrated by the Treaty’s failings. Hopes pinned on the revised SMTA increasingly appear vain, above all because of its failure to properly address DSI. For years,

developing country governments have openly speculated on the possibility of “turning out the lights”, and letting the Treaty drift into obscurity. That possibility might now become reality; the outlook for the Treaty seems grim if the revised SMTA fails. Yet, developing country Parties should not succumb to a well-intentioned temptation to give something – anything – a last ditch shot, no matter how flawed.

Feeling pressure to agree is understandable, especially after such a protracted period, but discretion is the better part of valour, and it would undoubtedly be unwise for a revised SMTA to be adopted if it does not thoroughly spell out requirements in relation to DSI. To do so risks locking MLS DSI into a free-for-all situation for at least a decade, or more, before another revision could be negotiated and adopted, with the North surely demanding more concessions, probably including bringing into force the amendment to Annex 1 and inclusion of *in situ* genetic resources before properly sharing DSI benefits.

If the revised SMTA leaves DSI business unfinished, then unbridled, run-away sequencing, hoarding and/or “open sourcing” of MLS DSI may so profoundly alter the access and use landscape for agricultural genetic resources that, from the perspective of industry, a decade from now there may be no benefit sharing value left in the MLS, and hence no reason to sign up for it. And with that, as a benefit sharing system, the MLS will fade into irrelevance.

Thus, barring truly remarkable negotiating success at the Governing Body to address the types of DSI questions outlined in this paper, the best course of action in Rome in November 2019 will be to again turn back adoption of the revised SMTA (and linked Treaty amendment) until the processes of the CBD and the Governing Body itself offer up the necessary policy guidance to the Working Group, so that it may agree upon and include a full and proper set of provisions in relation to DSI in the revised SMTA.



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