

# BioResource Now!

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**Ratification of the Nagoya Protocol is in the countdown phase**  
 —How to cope with it—

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Hot News <NO.50>

## Ratification of the Nagoya Protocol is in the countdown phase —How to cope with it—

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### Introduction

The Convention on Biological Diversity states that when a person brings an animal, a plant, or a microorganism from overseas, the person must obtain prior informed consent (PIC) in accordance with the laws and regulations of the country providing the resource and reach mutually agreed terms (MAT) between themselves and the provider. The Nagoya Protocol, based on the Convention on Biological Diversity, provides international rules to ensure access and benefit-sharing of overseas genetic resources, and has been in effect since October 12, 2014, during the twelfth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP12). At present, 95 countries and the European Union (EU) have already concluded the Convention. In Japan, domestic measures for the implementation of the Nagoya Protocol were opened to the public on January 20, 2016, and the conclusion of the Nagoya Protocol became a matter for discussion within the National Diet's 2016 sessions. During a meeting on February 24, 2016, the Cabinet determined that the matter would be brought before the rest of the National Diet for deliberation. If everything progresses smoothly, the National Diet will approve conclusion, and Japan will be a signatory country of the Nagoya Protocol 90 days after the date of deposition to the United Nations. Japan's ratification\*, a long-time discussion, can become a reality.

### Content of guidelines (draft)

In the Nagoya Protocol, the primary function of a country using a genetic resource is to monitor compliance with laws and ordinances of a country providing the resource. To this end, the corresponding authority of a country providing the resource submits PIC and MAT information to the Access and Benefit-Sharing (ABS) Clearing-House so that an internationally recognized certificate of compliance (IRCC) can be issued. At present, 51 IRCCs have been issued. In Japan, an IRCC for chayote (*Sechium edule*) in Mexico was issued to Professor Kazuo Watanabe of Tsukuba University.

Guidelines (draft) for the Nagoya Protocol were opened to the public<sup>1)</sup> as part of the domestic measures in Japan. The guidelines are characteristic of simple measures, such as the obligation of the person to whom an IRCC has been issued to report this information to the Ministry of the Environment. **Measures to be followed by Japan as a country using resources** are described below.

\*This article also uses the general term "ratification," however, the terms "conclusion" and "deposition to the United Nations" are correct.

- (1) As pertains to the report of the legal acquisition of genetic resources, the acquirer of a genetic resource shall report that the genetic resource has been legally acquired to the Minister of the Environment within six months after its IRCC was published in the ABS Clearing-House. The Minister of the Environment shall ask a person who has not made the report to make the report. The corresponding minister shall instruct and advise the acquirer if necessary.
- (2) As pertains to the publicity of legal acquisition inside and outside of Japan, the Minister of the Environment publishes the report content of the legal acquisition of a genetic resource on the Ministry of the Environment website and provides the report content for the ABS Clearing-House.
- (3) As pertains to monitoring, approximately five years after the report of a legal acquisition of a genetic resource, the Minister of the Environment asks the acquirer to provide information on the use of the acquired genetic resource. Those who have not provided the information will be asked to provide the information again. The corresponding minister shall instruct and advise the acquirer if necessary.
- (4) As pertains to cooperation with the claim of breaching laws and ordinances of a country providing a genetic resource, when another signatory country of the Nagoya Protocol claims the breach of laws and ordinances of a country providing a genetic resource, the Minister of the Environment shall ask the handler of the genetic resource to provide appropriate information to be

**Measures taken by Japan as a country providing resources** are that, when a genetic resource in Japan is provided, its provider does not need to obtain its PIC. However, because social circumstances concerning ABS may change, these measures are to be examined within five years after execution and may be revised if necessary.

The guidelines (draft) also state that the providers and users of genetic resources in Japan or the users of genetic resources in countries providing these resources should promote ABS in such a way that these providers and users

- (1) Endeavor to conclude a contract in which benefits arising from the utilization of genetic resources are fairly and equitably shared,
- (2) Endeavor to use the benefits for conserving biodiversity, and
- (3) Endeavor that rules on information sharing are included in MAT, which are set in the contract.

Parties in industries related the use of genetic resources should endeavor to create samples of the terms of contract, the code of conduct, guidelines, best examples, and criteria regarding genetic resources. The above-mentioned matters encompass the outline of the guidelines (draft).

### Measures to cope with the implementation of the Nagoya Protocol, including the guidelines

The guidelines are based on the premise that genetic resources are acquired while observing the laws and regulations of countries providing genetic resources, setting up ABS, and performing risk management. Therefore, each university and research institution must take the following three measures (Table):

- 1) Observe the guidelines and make reports on the IRCC
- 2) Observe the laws and ordinances of countries providing genetic resources and honor contracts
- 3) Observe the basic concept of ABS and acquire no genetic resources unethically

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1. Observe the guidelines	Make reports and monitor guideline compliance Observe matters described in the guidelines	<ul style="list-style-type: none"> <li>• Report IRCC after being published in the ABS Clearing-House</li> <li>• Monitor compliance five years after the legal acquisition of a genetic resource</li> <li>• Optional submission (must be examined)</li> <li>• Cooperation with claims</li> </ul>
2. Observe the laws and ordinances of countries providing genetic resources and honor contracts	Acquire genetic resources while observing the laws and ordinances of countries providing the genetic resources and share the benefits in accordance with MAT	<ul style="list-style-type: none"> <li>• Observe the laws and ordinances of countries providing genetic resources</li> <li>• Acquire PIC from the corresponding authority of a country providing genetic resources</li> <li>• Establish MAT, memorandum of understanding, and memorandum of agreement between organizations</li> </ul>
3. Observe the basic concept of ABS and acquire no genetic resources unethically	Observe the concept of the Convention on Biological Diversity and act accordingly Act without ethical accusations Risk management	<ul style="list-style-type: none"> <li>• Keep a good relationship with the counterpart in a country providing genetic resources</li> <li>• Establish a joint research agreement between organizations</li> <li>• Follow through with obligations to obtain PIC</li> <li>• Consider local residents and indigenous people</li> </ul>

Table. Three measures necessary for the guidelines  
 Measures that must be taken by researchers in universities and research institutions are roughly divided into three hierarchies.

The preparation of laws and ordinances of each country differs from each other and not many countries have clearly prepared laws and ordinances on ABS. In many cases, items related to environmental preservation are dispersed across several laws and ordinances. Since different departments handle different types of genetic resources, the laws and ordinances applied to them and the sense of rights differ according to the type of genetic resource, necessitating the actual acquisition of a genetic resource be performed according to its type.

Measures that must be primarily taken by universities are

- (1) To clarify the responsible department and person,
- (2) To understand the actual situation,
- (3) To create intramural processes and rules, and
- (4) To intramurally disseminate the created processes and rules.

The responsible department and person in a university must be in cooperation with its departments of risk management, university-industry research collaboration, and research promotion, as well as its experimental facilities for genetic modification. To understand the actual situation, a questionnaire survey should be administered.

A bioresource-related institution must confirm that a genetic resource from overseas offered by the institution was acquired while observing the laws and ordinances of a country providing the genetic resource at that time; that a genetic resource was deposited in accordance with an appropriate procedure; and that when the distribution of a genetic resource is conditional, the condition is observed.

Each bioresource center should play a key role in smoothly distributing genetic resources and in handling problems with overseas genetic resources in the academic community.

### Conclusion

At present, it is urgent that a system to cope with the Nagoya Protocol be established on a nationwide scale.

Our ABS Task Force Team will strengthen our organizational structure. In the 2017 fiscal year, we begin support for the construction of a bioresource-related system in universities, support for universities to acquire genetic resources, and will provide various types of support for bioresource-related institutions.

The latest information on the ABS Task Force Team is available at its home page ([www.idenshigen.jp](http://www.idenshigen.jp)). Please participate in the establishment of rules on handling bioresources from overseas through the mailing list2). ■

- 1) Collecting opinions (public comment) on guidelines (draft) for the Nagoya Protocol (the Ministry of the Environment) which are "Guidelines for the Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (draft)" at <http://www.env.go.jp/press/103502.html>
- 2) Mailing list of researchers related to the Nagoya Protocol at <http://np-iken.sakuraweb.com/maillinglist.html>



## HTTPS Communication

Ongoing Column [No. 112] 

Our website is in the process of being migrated from HTTP to HTTPS, in order to enhance its security further. We have always used HTTPS for situations in which high confidentiality is required, such as for credit card payment transactions.

In April 2016, a new certificate authority (CA), which offers HTTPS certificates for free, made an appearance, making it easy to implement HTTPS. In this article, I would like to provide information that would be useful for implementing HTTPS communication. Due to the technical nature of the content, this article is intended for an audience that has previous experience in setting up servers and running the Apache web server.

### SSL Server Certificate

In order to implement HTTPS communication, you will need an SSL server certificate issued by a CA. "Let's Encrypt" is a popular CA known for providing free SSL server certificates. Let's Encrypt started its formal service in April 2016.

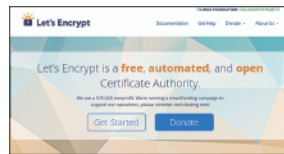


Figure 1. Official website of Let's Encrypt

If you are running a Linux operating system, then you can obtain an SSL server certificate directly by using a tool called certbot. If you had hesitations about HTTPS implementation in the past due to the high cost of SSL server certificates, this is a great opportunity for trying out HTTPS by using this free service.

[Let's Encrypt official website] <https://letsencrypt.org/>  
 [Let's Encrypt portal website] <https://letsencrypt.jp/usage/>

### Checking HTTPS strength

After switching to HTTPS, all the traffic will be encrypted. Compared to HTTP, the confidentiality of information is better in HTTPS; however, there have been frequent reports of vulnerabilities that undermine encrypted traffic. Thus, performing a regular check is indispensable. I recommend the use of a free inspection service provided by QUALYS SSL LABS. [QUALYS SSL LABS] <https://www.ssllabs.com/ssltest/index.html>

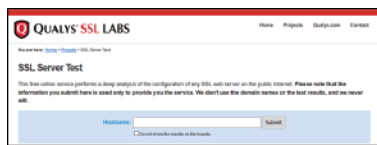


Figure 2. QUALYS SSL LABS test page

Type the server domain that you would like to test in the [Hostname] field. Make sure you enable the checkbox next to "Do not show the results on the boards" to prevent results from being shared publicly. Click on [Submit] to begin inspection of your server SSL certificate and configuration. If you are interested in finding out the types of criteria against which the test is performed, click on one of the domains shown at the bottom of the screen. In the inspection report, you will notice items labeled "INSECURE" in red. In the example shown below, the reason for the insecure verdict is that the server supports an old traffic encryption algorithm called "RC4" that can easily be decrypted.

Cipher Suites (SSL 3+ suites in server preferred order; deprecated and SSL 2 suites at the end)	
TLS_RSA_WITH_AES_256_GCM_SHA384 (0x0)	256
TLS_RSA_WITH_AES_256_CBC_SHA256 (0x0)	256
TLS_RSA_WITH_AES_256_CBC_SHA (0x0)	256
TLS_RSA_WITH_AES_128_GCM_SHA256 (0x0)	128
TLS_RSA_WITH_AES_128_CBC_SHA256 (0x0)	128
TLS_RSA_WITH_AES_128_CBC_SHA (0x0)	128
TLS_RSA_WITH_3DES_EDE_CBC_SHA (0x0)	112
TLS_RSA_WITH_RC4_128_SHA (0x0) INSECURE	128
TLS_RSA_WITH_RC4_128_MD5 (0x0) INSECURE	128

Figure 3. A sample QUALYS SSL LABS test report (excerpt)

To address this issue, RC4 must be disabled on the HTTP server (Apache). All you have to do is to add the directive "RC4" in the SSLCipherSuite heading inside the Apache configuration file, httpd-ssl.conf. If you would like to know more about encryption configurations, please refer to the "SSL/TLS Encryption Configuration Guideline" published by the Information-Technology Promotion Agency, Japan (IPA).

Popular browsers have started demanding website administrators to implement HTTPS for safer web communications. Google Chrome, for example, shows an alert when an input form is not presented through HTTPS. Similarly, the browser on a Mac implements a mechanism to block HTTPS that use low encryption strengths. Other browsers are following this trend, and HTTPS implementation can be said to be a growing requirement. I hope this article will help you in enabling HTTPS on your web server.

(Tohru Watanabe)

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### BioResource Information

(NBRP) [www.nbrp.jp/](http://www.nbrp.jp/)  
 (SHIGEN) [shigen.nig.ac.jp/indexja.htm](http://shigen.nig.ac.jp/indexja.htm)  
 (WGR) [shigen.nig.ac.jp/wgr/](http://shigen.nig.ac.jp/wgr/)  
 (JGR) [shigen.nig.ac.jp/wgr/jgr/jgrUrlList.jsp](http://shigen.nig.ac.jp/wgr/jgr/jgrUrlList.jsp)

### Editor's Note

BioResource Now! has delivered a range of information on genetic resources for the last 12 years. How have you enjoy reading it? In the final issue of this newsletter, Mutsuaki Suzuki, Director for the Intellectual Property Unit, kindly explained the draft guidelines and future measures for the Nagoya Protocol, the ratification of which is in the countdown phase. Although the basic idea on genetic resources will not change drastically after the ratification, the responsibility of the users and providers of genetic resources will increase. This newsletter is being terminated due to the retirement of the person in charge. I am grateful to all the writers for their kind contributions during their busy schedules and to all the long-time readers of this newsletter. (Yukiko Yamazaki)