


# RESEARCHERS GUIDE TO INTELLECTUAL PROPERTY MANAGEMENT AT NARO

## Purpose of the Guide

This guide is intended to act as a quick reference for use by NARO staff from time to time during research. It was prepared to answer questions that the researchers working with NARO might ask and aid their understanding of how Intellectual Property (IP) considerations can effectively be integrated into their research activities.

Its aim is to provide a broad overview of key issues in IP management process generally, with additional pointers of what is likely to arise during research to help researchers understand the key steps and questions they should consider, and the implications of protecting, or not protecting, any IP that they generate while conducting research and developing products.

The Researchers' Guide to Intellectual Property explains essential elements of IP Management at the National Agricultural Research Organisation (NARO) and other important concepts relating to:

- The nature of IP and how to protect it;
- How to identify technologies with IP and commercial feasibility;
- How IP can be commercialised and exploited;
- How IP impacts on the activities of researchers; and
- Confidentiality in generating IP.

It is the mission of the NARO IP Office to capture the advances, discoveries and technologies developed by or assigned to NARO and to transform them into products that will enhance NARO's reputation and attract commercial opportunities. The IP Office is keen at promoting the effective identification, disclosure, protection and management of technologies and innovations, to facilitate informed and appropriate decision-making in respect of how the IP concerns can best be utilised for the benefit of NARO and improve the prospects for successful technology transfer to the market.

Remember that this is just a guide and not a substitute to seeking for technical guidance. It has also to be read in the context of NARO's IP Policy framework and other relevant policies and guidelines.

## Intellectual Property Overview

### What is Intellectual Property (IP)?

IP is a term that describes the rights which protect ideas and other forms of intellectual creation from human endeavours in the scientific, commercial, literary and artistic fields. Intellectual property is very important because, it gives statutory expression to the moral and economic rights of creators in their creations and the rights of the public in access to those creations.

It is made up of a bundle of different rights referred to as Intellectual Property Rights (IPRs). Some IPRs have to be registered to be effective while others arise automatically.

### What are Intellectual Property Rights (IPRs)?

These are exclusive rights on intellectual creations they include; patents for technology related field such as scientific works and inventions, trademarks and designs for business, copyright and related rights for the literally, artistic and musical works, plant variety protection for new crop and tree varieties and geographical indications, all of which have different legal requirements for obtaining and exercising IP. IPRs are designed to stimulate innovative and creative activity, to encourage the dissemination of the outcomes of such activity and to promote economic and social development. Creators are typically rewarded with exclusive rights for a specific limited period of time after which the IP goes to the public domain. The IP system emphasises a balance between creators' right and the public good.

### Understanding different forms of IPR

**Patent:** This is an exclusive legal right granted to an inventor by government for the invention that provides a technological solution to a technical problem. An invention may relate to a product or a process and it is granted for a given period of time usually 20 years from the filing date.

### Conditions of Patentability

An invention must meet several criteria for it to be eligible for patent protection. These include;

1. **Patentable subject matter:** An invention must fall within the scope of patentable subject matter as laid in the industrial property act, 2014.

Inventions excluded from patent protection include: discoveries of materials or substances already existing in nature; scientific theories or mathematical methods; plants and animals other than microorganisms, and essentially biological processes for the production of plants and animals, other than non-biological and microbiological processes; schemes, rules or methods, such as those for doing business, performing purely mental acts or playing games; and methods of treatment for humans or animals, or diagnostic methods practiced on humans or animals (but not products for use in such methods).

2. **Novelty:** The invention must be new and should not have been anticipated by prior art. This means that there should not be any knowledge that existed whether by written or oral disclosure prior to filing date of the patent application.

3. **Inventive step:** The invention should not be obvious to a person having ordinary skill in the art. This can only be determined by someone with an average level of skill reached in the field in question.

4. **Industrial applicability:** The invention must be of a kind which can be applied for practical purposes, not be purely theoretical. If the invention is intended to be a product or part of a product, it should be possible to make that product. And if the invention is intended to be a process or part of a process, it should be possible to carry that process out or use it.

**Utility Model:** This is an exclusive right for an invention that usually passes novelty test and has industrial applicability. It is also referred to as a petty or small patent. Utility models differ from patents mainly in two respects, first, the technological progress required is smaller than the technological progress (inventive step) required in the case of an invention for which a patent is available and secondly, the maximum term of protection for a utility model is generally much shorter than a patent usually 10 years.

**Copyright:** This deals with particular forms of creativity, concerned primarily with mass communication. It is concerned with virtually all forms and methods of public communication, not only printed publications but also such matters as sound and television broadcasting, films for public exhibition in cinemas and even computerized systems for the storage and retrieval of information. Copyright protects only the form of expression of ideas, not the ideas themselves. Copyright arises automatically once your idea/knowledge has been expressed in permanent form. It must have involved some element of creation and skill and not copied (substantially) from elsewhere.

The subject-matter of copyright protection includes every production in the literary, scientific and artistic domain, whatever the mode or form of expression. For a work to enjoy copyright protection, it must be an original creation.

The original authors of works protected by copyright also have moral rights, in addition to their exclusive rights of an economic character. Acts that require authorization by the copyright owner include; copying or reproducing the work; performing the work in public; making a sound recording of the work; making a motion picture of the work; broadcasting the work; translating the work adapting the work. Copyright protection period is the author's lifetime plus 50 years after death.

**Trademarks:** This is any sign that individualizes the goods of a given enterprise or entity and distinguishes them from the goods of its competitors on the market. For practical purposes one can even simply rely on the distinguishing function of the trademark, and define it as any visible sign capable of distinguishing the goods or services of an entity from those of others.

A trademark can be words, letters and numerals, symbols or drawings, colors, sound, smell, two and three dimensional signs and invisible signs recognized by touch. Protection period can be in perpetuity subject to renewal.

**Industrial design:** This refers to the creative activity of achieving a formal or ornamental appearance for mass-produced items that, within the available cost constraints, satisfies both the need for the item to appeal visually to potential consumers, and the need for the item to perform its intended function efficiently.

Industrial design protection is given to an innovative shape, appearance or ornamentation, to provide greater form of protection to the owner to prevent third party from using it. Industrial design protects a design which is applied to or embodied in such articles or products. It applies to such articles or products as embody or reproduce the protected design. The conception or idea that constitutes the design may be something which can be expressed either two-dimensionally or three-dimensionally. Protection period is up to 15 years.

**Geographical Indication (GI):** This refers to an indication that denotes the place of origin or source of a product. The product should have unique characteristics, associated to the place of origin and influenced by natural factors such as the geographical environment, climate, temperature and soil. Basically, a geographical indication is a notice stating that a given

product originates in a given geographical area. The best known examples of geographical indications are those used for wines and spirits.

**Trade secret:** This is any confidential information which provides an entity with a competitive edge. This information should be a secret, with commercial value and the owner must have taken reasonable steps to keep it secret. For example, technical information which is valuable and identifiable, including results, experimental techniques, formulae, chemical structures, source code, know-how etc. can be protected as secret such as the formula of making Coca-Cola. The protection period of a trade secret is unlimited as long as it is a secret

**Plant Varieties Protection (PVP):** This grants protection to new or improved plant varieties developed as a result of plant breeding. Varieties of plants which produce improved yields, higher quality or provide better resistance to plant pests and diseases are a key element and a most cost effective factor in increasing productivity and product quality in agriculture, horticulture and forestry, whilst minimizing the pressure on the natural environment.

A plant variety can be protected only when it meets the following conditions;

i. **Novelty:** The variety must be new and must not have been commercially released or otherwise disposed of for more than one year prior to the application for a breeders' right.

ii. **Distinct:** The variety should be clearly distinguishable from any other variety whose existence is a matter of common knowledge at the time of filing of the application.

iii. **Uniform:** The variety should be sufficiently uniform in its relevant characteristics.

iv. **Stability:** The variety must have its relevant characteristics unchanged after repeated propagation or in the case of a particular cycle of propagation at the end of each such cycle.

## Strategic importance of Intellectual Property

In the first instance, IP promotes creativity, dissemination and application of its results and it encourages fair trading which ultimately contributes to economic and social development. IP stands to safeguard creators and other producers of intellectual creations by granting them certain time-limited exclusive rights to control the use made of those creations. It plays a significant role in technological innovation by serving as an incentive for creators to invest in research and development.

## Rationale for IP Management in NARO

Effective IP management is important for enhancing the impact of NARO's research, by facilitating the application and use of technologies developed at NARO. IP is anticipated to enhance technology access through commercialisation strategies of technologies that lead them to the market, and ultimately by communities and other end-users who can benefit from them.

A strong IP portfolio is anticipated to attract Research partnerships, collaborations and funding. This will ultimately facilitate wider interaction between the research and industry, leading to more needs-based research which can offer solutions to real-life problems.

Successful technology transfer and commercialisation may also generate new income streams for NARO, to be ploughed back to support research thus research continuity and to create incentives for Researchers.

More importantly, the key function of IP is to stimulate creativity thus this would increase the number of new ideas, discoveries and technologies generated from NARO research.

### What Intellectual Property issues that need to be considered before conducting research?

Below is a simple checklist of what needs to be considered before starting on research or entering into agreements with others to work on a project.

1. Review the NARO Researchers' guide to IP to learn about some of the key IP aspects and issues one should be aware of and may need to anticipate in your project agreements or IP-related contracts.
2. Determine whether research contracts are in-line with provisions of NARO IP policy framework.
3. If research involves background IP, determine whether there is a mechanism for the declaration of that Background IP.
4. Consult with NARO IP Office to ensure that IP issues are identified and all conform with NARO IP policies and guidelines.

### Key questions to consider during Research planning

i. Has the nature and purpose of the research been identified and described?

ii. Have the interests of all parties involved been discussed upfront, such as the acquisition of IPRs, benefit sharing and the risks associated with IP?

iii. Is there any existing IP (background IP), anticipated IP (foreground) or new unanticipated IP coming from the project? How will these be disclosed, if necessary, discussed and rights agreed?

iv. Has ensuring equitable downstream access to the outputs of the research endeavour been discussed?

v. Have you familiarised yourself with a contract template, and identified the kinds of terms which will be negotiated?

vi. Have you discussed who will own the various types of IP, including the possibility of exclusive ownership with a royalty-free license?

vii. How will the various types of IP be protected (i.e. will there be rights and responsibilities inferred over owners of the IP)?

viii. Who is responsible for securing protection, maintenance of rights (payments of annuities) and enforcement of rights?

ix. Are there cost implications for the acquisition and protection of IPRs and who will be responsible for covering these costs?

## Why should a researcher be concerned about IP?

Besides the above mentioned importance of IP, a researcher stands to benefit in a number of other ways including;

» Achieving recognition.

» Participating in royalties and other financial rewards.

» Meeting the obligations of a research contract.

» Attracting research sponsors.

It should also be noted that, NARO actively promotes exploitation of research results to achieve benefits for society.

In same way, research funders are more and more interested in the societal impact and societal benefits of research and creating intellectual property that can be commercialized helps to achieve these goals.

## When do researchers engage the NARO IP Office?

Researchers are encouraged to work with the IP Office before and during the research process to ensure that they are aware of the options that will best leverage the commercial potential of their research. The IP Office would assist clearing questions related to ownership in funded research as well as, commercialisation strategy, benefits sharing, patenting and other protection methods and much more.

To avoid risking patent rights and possibly hindering the opportunity to market your invention, contact the IP Office before holding any discussions with people outside NARO. If a patent application has not yet been filed, the IP Office will provide you with an appropriate Non-Disclosure Agreement for the party to sign before you describe your invention to them.

### What services are available at the IP Office?

The IP Office is responsible for management of IP generated in and by NARO.
The Office also links external stakeholders especially private and business players, NARO, her institutes and staff.

Services offered cover the entire lifecycle of a research project: conducting due diligence, guidance and preparation of applications together with the applicant, support for management and administration of research project contracts, support IP negotiations, commercial exploitation of research results among others.

### What does Technology Transfer stand for?

Technology transfer is the advancement of knowledge and discoveries to the general public. It can occur through publications, exchanges at conferences, and relationships with industry. It should be emphasised and noted that public research does not mean 'free research' and "free access" and NARO has developed the approaches in order to strike a good balance between public and commercial access for greater public benefit.

### Technology Development and Transfer Processes

The process of technology transfer is summarized below. Note that these steps can vary in sequence and may often occur simultaneously.

1. Research: Observations and experiments during research activities often lead to discoveries and inventions. An invention is any useful process, machine, composition of matter such as a chemical or biological compound, or any new or useful improvement of the same. Often, multiple researchers including trainees and research staff may have contributed to an invention and may be inventors.

2. Technology Disclosure: This is a written notice of the technology through the Technology Disclosure Form (TDF) to the IP Office for assessment and protection process. The TDF is a confidential document, and should fully describe the new aspects of your invention, including the critical solution it provides and its advantages and benefits over current technologies.

3. Assessment: This is the review the TDF. It may include conducting patent searches if applicable, analysing the market and competitive technologies to assess the invention's commercialization potential. The assessment process guides in determining the IPRs to protect, determine commercial potential and the licensing strategy for example, to license exclusively or non-exclusively, or to license the technology in different fields of use.

4. Intellectual Property Protection: If appropriate and warranted, IPR protection begins with drafting and filing of the application with the Uganda Registration Services Bureau and when appropriate with foreign IP Offices. This requires some reasonable resources in terms of money and time however, it must be noted that IPR application and filing has no guarantee of success.

5. Marketing: The IP Office working closely with the creator of IP takes on the marketing responsibility of the technologies to appropriate companies that could be interested in commercializing the particular invention.

6. Selecting the best licensee(s): In situations where there a likelihood of having several parties interested in a license, the IP Office may consider licensing non-exclusively. If it is not possible to accommodate all interested parties, one may choose to license the entity most committed and able to bring the technology to the marketplace.

7. Licensing: The IP Office together with the Creator(s) negotiates and executes a license agreement. This agreement is a contract between NARO and the company in which certain IP rights to a technology are granted in return for financial and other benefits.

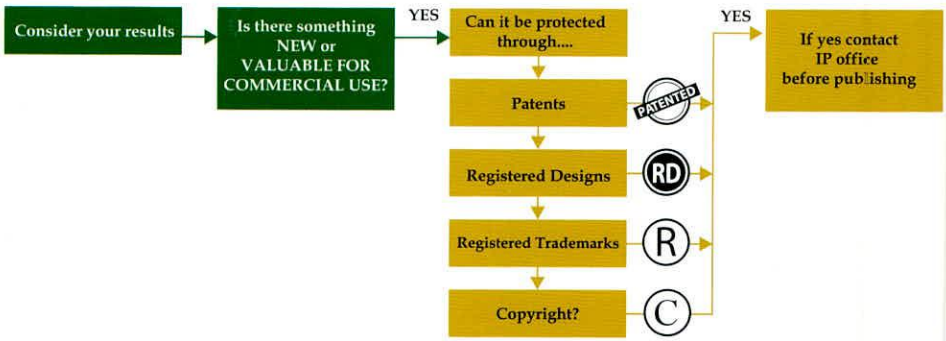
8. Commercialization: This is where the licensee company makes significant business investment to make the product or service available on the market. This step may entail regulatory approvals, sales and marketing, support, training, and other activities.

9. Royalties: Royalties received by NARO from licensees are distributed according to the NARO IP Policy. Royalties include both cash and equity received from licensees in consideration for granting the license.

10. Reinvest: Royalties received collectively by NARO is reinvested under the Agricultural Research Fund (ARF) to foster the creation of the next generation of research and innovations.

## How can I achieve the objectives of publishing and patenting?

It's all about managing the timing! Contact the IP office as soon as you realise that you have conceived a new technology. It is important that secrecy is maintained until a provisional patent application (at least) is in place. One of the key requirements for patent protection internationally is novelty and this means that a technology should not have been disclosed publicly, e.g. at a conference in an oral presentation, at meetings with people external to NARO, or in articles. The IP office will work with a researcher(s) to ensure that the necessary IP protection is in place prior to the publication or conference date.




### What constitutes public disclosure?

Any disclosure of an invention to the public prior to the filing of a patent application will mean the invention is no longer patentable. Public disclosure includes dissemination of information on the invention (a sufficiently detailed description of the invention that allows it to be duplicated or put into use) through newspaper articles, newsletters, bulletins, textbooks, journals, theses, reports, letters to journal editors, oral presentations etc.

### Specific types of disclosure to guard against are, amongst others:

- Informal discussions outside of your institution;
- Postings on the web, blogs;
- Talks at meetings;
- Abstracts;
- Posters; and
- Unprotected e-mail.

### How do I know if the technology I created is already in the public domain?

A previous disclosure can include anything from a published patent, document, information contained in a book, article, journal, TV documentary, demonstration or even just common practice. Whilst you cannot expect to find everything, a good starting point is to see if there are any existing patents which relate to your invention. It is easier than ever to find patent information as the format of patents has become increasingly standardised and there are many user-friendly websites that you can search.

### Use of Technology and Innovation Support Center (TISC)

NARO has established TISC centres at all PARIs and identified and trained at least two focal persons from each institute.

TISC is a program meant to provide researchers in NARO with access to locally based, high quality technology information services and other related services. TISCs have potential of enhancing innovation through knowledge and expertise if fully utilised. It is important to note that patents represent a vast source of information covering every field of technology and using patent information to find technology from around the world is easy. TISCs promote access and effective use of valuable sources of technical and commercial information, such as patent information, scientific and technical journals, trademark and industrial design information etc.

### Objectives of TISC program

i. To increase availability of scientific and technical information to help researchers improve on the quality of their research;
ii. To help users create, protect, own and manage intellectual property rights.

### Services offered through TISC program

Basic services available from all TISCs include:

- Access to online patent and non-patent (scientific and technical) resources;
- Access to industrial property-related publications;
- Assistance in searching and retrieving technology information;
- Training in searching databases;
- On-demand searches (determining novelty);
- Technology monitoring;
- Basic information on registering Intellectual Property rights;
- Basic information on industrial property management and strategy;
- Basic information on technology commercialization and marketing.

**The focal persons were trained on how to operate and search**

- Patent databases
- Science journals
- Idea assessment and
- IP identification
- The focal persons were given password to access commercial databases at no cost.

**The expected outcomes of the TISC program**

- Improved quality of research through tracking research activities and trends.
- Enhanced creativity and improvement of ideas in specific areas of technology.
- Preventing patent infringement in research.
- It would also help in drafting strong patent applications and determining patentability of generated technologies.
- Duplication of research and development effort prevented.
- Guide in valuation of technologies.
- Exploitation of technologies from patent applications that have never been granted, and patents that are expired in certain countries or are no longer in force.

Contact your institute's TISC focal persons for more information.

**How can our IP be commercially exploited?**

The commercial exploitation of IP and technology at NARO shall be effected through one of the following methods:

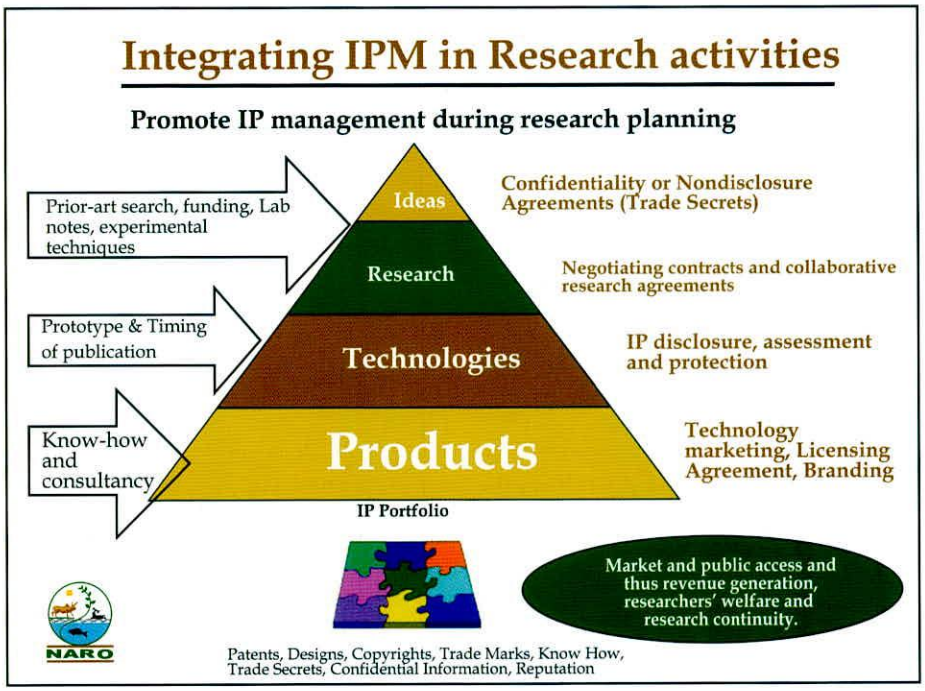
- outright sale of ownership of the specific IP to a third party;
- licensing of the exploitation rights to a third party;
- the exploitation of the IP in a joint venture with a third party by means of an agreement;
- establishing a spin-out and startup company.

**Taking IP into consideration at different stages of the research process**

Considering intellectual property during the lifespan of a research project has to be carefully planned and the plan has to be constantly updated as the research projects results are achieved.

All researchers involved in the project have to understand the intellectual property, commercialization and publishing goals and processes of the research project. Funding body requirements are essential in defining these goals.

The Research process pyramid puts down major research stages and appropriate intervention measures to safeguard any resultant IP.




## What is Technology Disclosure?

Technology Disclosure refers to notification by a researcher to the IP Office through a Technology Disclosure Form (TDF) about the technology conceived. The technology disclosure provides adequate information so that the technology can be assesses and protection process to commence. The assessment is done to determine both IP and commercial potential for patentability or any form of IP protection.

This assessment takes typically 2 to 4 weeks. Usual procedure is to retrieve relevant documents from patent databases for novelty, market assessment and technical performance to consider feasibility of the technology.

There are 4 main components in the technology assessment process as follows:

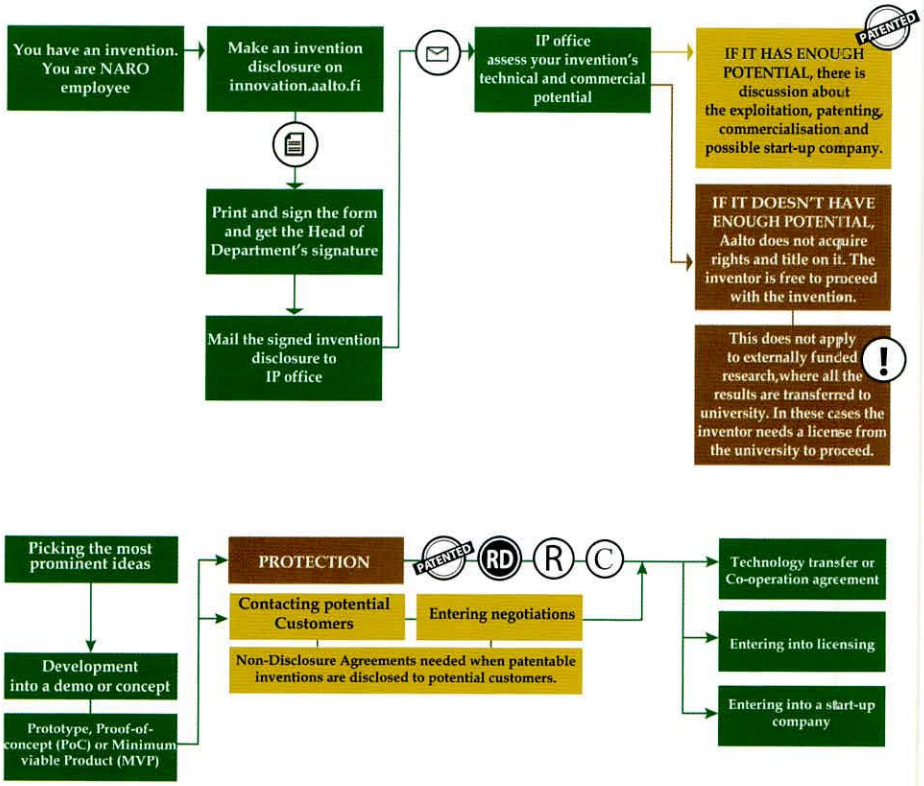
i. Technology development process: It involves checking the inventors or contributors to the technology, Publication Timelines and funding Sources.

ii. Patentability Assessment: It entails conducting Patent Searches and issue an opinion.

iii. Commercial Assessment: Checking marketability and Partners that may be interested in the technology.

iv. Scope of protection: This involves determining the territories or jurisdictions where the technology needs to be protected.

**Below is the commercialisation process that the IP office follows.**



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