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**WORLD INTELLECTUAL PROPERTY ORGANIZATION**  
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**INTERGOVERNMENTAL COMMITTEE ON  
INTELLECTUAL PROPERTY AND GENETIC RESOURCES,  
TRADITIONAL KNOWLEDGE AND FOLKLORE**

**Fourth Session**  
**Geneva, December 9 to 17, 2002**

TECHNICAL PROPOSALS ON DATABASES AND REGISTRIES OF  
TRADITIONAL KNOWLEDGE AND BIOLOGICAL/GENETIC RESOURCES

*Document submitted by the Asian Group*

1. In a letter dated December 6, 2002, the Permanent Mission of India to the United Nations Offices and other International Organizations in Geneva submitted a document on behalf of the Asian Group entitled "Technical Proposals on Databases and Registries of Traditional Knowledge and Biological/Genetic Resources."
2. The document is reproduced in the Annex.
3. *The Intergovernmental Committee is invited to take note of this document, and to take decisions on the proposals contained in the Annex to it.*

[Annex follows]

ANNEX

TECHNICAL PROPOSALS TO THE WIPO INTERGOVERNMENTAL COMMITTEE  
ON IP AND GENETIC RESOURCES, TRADITIONAL KNOWLEDGE AND FOLKLORE  
("THE INTERGOVERNMENTAL COMMITTEE")

Fourth Session  
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Following regional consultations and the assessment of existing policies, initiatives and experiences in the field of genetic resources, traditional knowledge and folklore in Asian countries, the Asian Group submits the following technical proposals to the WIPO Intergovernmental Committee for consideration at its fourth session and for future work of the Committee. The proposals are based on the conclusions of the WIPO Asia-Pacific Regional Seminar on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, held in Cochin, India, from November 11 to 13, 2002 ("the Asia-Pacific Regional Seminar").

1. Background

The countries of the Asian Group are rich in genetic resources, traditional knowledge and expressions of traditional culture (folklore), which constitute an important and integral part of the cultural and natural heritage of the communities and countries of the region;

Numerous countries of the Asian Group are currently undertaking initiatives to further improve the interfaces between the existing intellectual property ("IP") system and genetic resources, traditional knowledge ("TK") and folklore;

Several countries of the Asian Group are additionally undertaking initiatives to develop new national IP mechanisms, including *sui generis* mechanisms, for the protection of genetic resources, TK and folklore;

The above-mentioned initiatives seek to achieve the defensive protection of genetic resources, TK and expressions of traditional culture (i.e., measures aimed at preventing the acquisition of IP rights by parties other than the customary custodians of the resources) and the positive legal protection of such resources, knowledge and expressions (i.e., the use of IP rights to enable the affirmative protection of genetic resources, TK and expressions of traditional culture by and for custodians of these resources themselves).

In strengthening the capacity and promoting the interests of the custodians of TK and genetic resources, many of the above-mentioned initiatives make use of databases and registries of TK and biological/genetic resources as operational mechanisms for the defensive and positive legal protection of TK and genetic resources.

As a reflection and synthesis of such existing initiatives and experiences, the Asian Group and China had submitted a Position Paper (WIPO/GRKTF/IC/2/10) to the second session of the Intergovernmental Committee. The Position Paper was based on recommendations of the WIPO Asia Pacific Regional Symposium on Intellectual Property Rights, Traditional Knowledge and Related Issues, held in Yogyakarta, Indonesia, from October 17 to 19, 2001.

The Position Paper stated *inter alia* that Member States may, “as appropriate, compile databases of traditional knowledge which is in the public domain and make these databases available to patent-granting authorities for the purposes of prior art searches, in order to prevent the grant of any intellectual property rights over such public domain knowledge” (paragraph 7(b)(ii)). It further recommended that Member States may “establish registers of traditional knowledge elements which are not in the public domain and keep the contents of the registers undisclosed, pending the possible establishment of new protection standards for the traditional knowledge elements contained in the registers” (paragraph 7(b)(ii)).

In order to facilitate such initiatives by countries and communities, the Position Paper recommended that WIPO should explore “the specifications that may facilitate the exchange of traditional knowledge information” by testing “existing techniques and criteria for the recording and exchange of patent information in the traditional knowledge area and, if needed, developing appropriate new criteria ... for the recording and exchange of traditional knowledge information” (paragraph 7(b)(iv)).

Further to these recommendations of its Position Paper, the Asian Group has developed a regional consensus on certain technical aspects of databases and registries for genetic resources and TK and proposes to develop an interregional consensus on technical aspects of such databases and registries within the Intergovernmental Committee.

## 2. The Use in Asian Countries of Databases and Registries for Traditional Knowledge and Genetic/Biological Resources

Experiences in Asian countries with the use of databases and registries for TK and genetic/biological resources have provided the following lessons learned for future work in this area:

- The purpose of Databases and Registries is not to put undisclosed TK and genetic resources into the public domain.
- Databases and Registries should achieve multiple IP objectives in respect of the genetic resources and TK on which they contain information. These objectives include defensive and positive legal protection in respect of the contents of the databases and registries. The full range of proposed objectives is set out in the Appendix of the Annexure to the present document.
- The rights of the custodians of TK and genetic resources to their continuing control and enjoyment of their knowledge and resources are to be recognized throughout the compilation, operation and use of databases and registries.
- Databases and Registries can be used as a set of tools when documenting TK and associated genetic resources with appropriate mechanisms to restrict access in accordance with the requirements of the custodians and traditional owners.
- Strategic IP management is critical when documenting TK and genetic resources, as are measures for ensuring prior informed consent concerning documentation and subsequent use of TK and associated genetic resources.

- There is a need to address and manage the risks attached to compilation and digitization of TK, which may lead to the ready access and unauthorized exploitation of the TK, in the absence of clear international legal principles.
  
- The teaching of TK systems may differ from the teaching of modern science even when it concerns identical practical solutions to technical problems in the same field of technology, utilizing the same biological/genetic resource. Therefore “the person with ordinary skill in the art” with reference to whom the inventive step of TK-related inventions is determined may have to include a person with ordinary skill in the relevant TK system(s), in addition to a person with ordinary skill in the relevant discipline(s) of modern science. There is a need to develop practical means of integrating the relevant teachings of TK systems and modern science when determining inventive step during the substantive examination of patent applications which claim TK-related inventions.

The Asian Group therefore recommends the use and development of multi-purpose databases which serve both defensive and positive protection of TK and genetic resources.

### 3. Technical Proposals for future work of the Intergovernmental Committee

Considering the above-mentioned background and experiences in Asian countries, the Asian Group submits the following technical proposals for future work of the Intergovernmental Committee:

#### 3.1 Proposed Data Specification for Technical Aspects of Databases and Registries of Traditional Knowledge and Genetic/Biological Resources

As a means of pooling practical experience gained from initiatives concerning databases and registries and as a means of supporting coordination of such initiatives, there is a need to develop an internationally agreed Data Specification (a set of agreed standards) for databases and registries of TK and biological/genetic resources, including the consideration of related legal questions, such as the relationship of documented TK and recognition of rights associated with TK, and the possibility of creating a legal presumption of ownership on the part of the TK holder with a TK rights system.

The draft Data Specification and recommendations contained in the Annexure to this document are put forth as a foundation for this work. The draft Data Specification and related recommendations were developed by an Asia-Pacific Workshop on Technical Aspects of Databases and Registries of TK and Associated Biological/Genetic Resources, and were subsequently adopted by the Asia-Pacific Regional Seminar. The Workshop was attended by experts who have established and operated the Traditional Knowledge Digital Library of Ayurveda, the Health Heritage Database of Ayurveda, the Indian Peoples' Biodiversity Registers (PBR), the Farmers' Rights Information System (FRIS), the Community Biodiversity Registers, the China Traditional Chinese Medicine (TCM) Patents Database, the Honeybee Database, the National Innovation Foundation (NIF) database of India, the Ayurvedic Materia Medica, the Ayuta Index; as well as experts with other practical

experience and expertise regarding databases and registries of TK and biological/genetic resources at the local, national and international levels.

The Asian Group submits the draft Data Specification and related recommendations of the Asia-Pacific Regional Seminar to the Intergovernmental Committee for consideration, further development and subsequent adoption.

### 3.2 Proposed Future Work of the Intergovernmental Committee on Databases and Registries of Traditional Knowledge and Genetic Resources

Based on the draft Data Specification and recommendations contained in the Annexure, the Asian Group requests the Intergovernmental Committee to undertake the following future work in furtherance of the proposals and elements contained in this document:

1. The Intergovernmental Committee should undertake systematic information gathering on the objectives, functionalities and technical specifications of databases and registries for TK and genetic resources through means such as questionnaires or fact-finding missions;
2. The Intergovernmental Committee should create a Task in its work program to further develop and adopt the draft Data Specification for Databases and Registries of TK and genetic resources contained in the Annexure. After adopting the draft Data Specification, the Committee should forward the final Data Specification to the Standing Committee on Information Technologies (SCIT), in particular its Standards and Documentation Working Group (SDWG), for consideration as an additional WIPO Industrial Property Documentation Standard and for inclusion in the WIPO Industrial Property Documentation Handbook. As part of the Task, the Committee should consider related legal questions, such as the relationship of documented TK and recognition of rights associated with TK, and the possibility of creating a legal presumption of ownership on the part of the TK holder with a TK rights system.
3. The Intergovernmental Committee should carry out this Task in close cooperation and in full conformity with the work of other relevant intergovernmental organizations, in particular the CBD, FAO and UNESCO.
4. The Intergovernmental Committee should explore practical means of integrating into substantive patent examination procedures the teaching of TK systems in such a way that “the person with ordinary skill in the art” who is referenced in the determination of inventive step includes a person with ordinary skill in the relevant TK systems.

### 4. Conclusion

The specific proposals submitted above reflect the broad position of the Asian Group. The Group is conscious of the opportunity provided by the Intergovernmental Committee to achieve consensus on intellectual property issues related to genetic resources, TK and folklore, and looks forward to working on these proposals with the other regional groups in the Committee.

[Annexure follows]

Annexure

The Asian Group attaches great importance to the concerns of TK holders and custodians of genetic resources relating to (i) ownership, (ii) nature and type of databases and registries, (iii) identification of national databases, (iv) benefit-sharing, etc. The proposal of the Asian Group is to evolve technical standards for creating databases and registries to serve the objectives as defined in the Appendix to this Annexure. Matters relating to international *sui generis* legal systems and benefit-sharing are vital but were outside the purview of the current technical proposals.

## I. TASK OBJECTIVES

Consistently applied standards are essential to preserve the cultural, linguistic and technical integrity of documentation data as it moves between various cultural and technological contexts, including databases and registries of TK and associated biological/genetic resources. In the light of the need for data standards for registries and databases of traditional knowledge and associated biological/genetic resources and in the absence of internationally agreed standards, the objectives of the proposed Task is to develop and recommend a Data Specification (a set of agreed standards) that could be used by databases and registries of TK and associated biological/genetic resources.

## II. GENERAL OBSERVATIONS

Communities should lead the compilation, operation and control of databases and registries of TK and associated biological/genetic resources. National and local actors should facilitate this, keeping in mind IP considerations as well as other benefits of documentation, such as conservation of TK and associated biological/genetic resources. WIPO should facilitate capacity building and networking of actors and processes for protection of IP relating to these databases.

The custodians of TK and associated biological/genetic resources should retain full control of the use of the documentation data of those resources and knowledge once they are compiled in databases and registries;

WIPO should explore the possibility of, and experiences with, co-inventorship for holders of traditional knowledge and associated biological/genetic resources, keeping in mind that the date of disclosure or filing of patent applications may differ due to factors external to the TK.

Given the wide scope and diversity of traditional knowledge and associated biological/genetic resources, it is recommended to begin the development of content standards by focusing on the domain of traditional medicine and medicinal plants, in particular codified systems of traditional medicine, such as Traditional Chinese Medicine (TCM), the Ayurveda, Siddha and Unani Tibb systems of South Asia, and the Koryo system of Korean traditional medicine. This initial focus on traditional medicine is recommended because most existing databases and registries have focused on this domain and therefore the largest amount of experience exists within traditional medicine. It was recommended to begin with codified systems of traditional medicine because from an intellectual property point of view they constitute the knowledge systems which have been fully disclosed.

### III. RECOMMENDATIONS

The Asian Group recommends the use of multi-purpose databases and registries which serve both defensive protection and positive legal protection of TK and associated biological/genetic resources.

Given the diversity of TK and associated biological/genetic resources, it may be advisable that there be an intermediate level between the level of the database in its entirety and the level of individual database records, namely data domains (such as traditional medicine, traditional agriculture, etc). Thus, the databases could be structured in, or allocated to, specific domains, such as traditional medicine, traditional agriculture, expressions of traditional culture, etc. The current Recommendations set out standard data fields for records in the domain of traditional medicine.

The recommended standards are categorized in three groups:

- (1) *content and resource identification standards* (including standardized data structures), which specify how TK and associated biological/genetic resources may best be described in the databases and registries;
- (2) *technological standards*, which specify how data about TK and associated biological/genetic resources are stored in the databases and registries;
- (3) *security and transmission standards*, which specify how access to databases may be controlled and how data about TK and associated biological/genetic resources may be securely exchanged between databases and registries.

A set of standards would become practically useful to communities and countries when it is compiled into a comprehensive Data Specification which reflects the specific characteristics and needs of TK and associated biological/genetic resources.

#### III.1 Content and Resource Identification Standards

##### III.1.1 Standard field definitions and field identifiers for databases and registries of traditional medicine and associated biological/genetic resources

As a first step in developing content standards, the Asian Group recommends a minimum set of data fields which a database or registry should encompass, if its aims to include intellectual property-specific objectives in relation to TK and associated biological/genetic resources. This specification includes field names and field content definitions. The specification covers subject matter description data, IP information associated with the description data, as well as images and multimedia documentation associated with it.

The list of recommended data fields takes account of WIPO Industrial Property Documentation Standard No. 9 (ST.9), entitled 'Recommendation Concerning Bibliographic Data On and Relating to Patents and SPCs.' The list of data fields has been organized into categories to facilitate grouping of related data. The structure so evolved is the following:

<i>Field Name (INID Code)*</i>	<i>Field Content Definition</i>
<b>(10) <u>Identification of the Record</u></b>	
Record Number	Number of the database record concerning a TK element or associated biological/genetic resource
*Document Number (11)	Number of the document which provides IP protection for a TK element or associated biological/genetic resource
Record Type (12)	Plain language designation of the kind of document
<b>(20) <u>Data concerning applications for title</u></b>	
*Application Number(s) (21)	Numbers assigned to the application for an IP title which provides protection for the TK element or associated biological/genetic material
*Filing Date(s) (22) <sup>1</sup>	Date(s) of filing of application(s) for an IP title which provides protection for the TK element or associated biological/genetic material
*Other Date(s) Concerning the Application (23)	Other date(s), including date of filing complete specification of TK element or associated biological/genetic resources, following provisional specification and date of exhibition
<b>(40) <u>Dates of making available to the public</u></b>	
Disclosure Date (09)	Date at which the TK element was disclosed and made available to the public, if any and if known
Publication Date (40)	Date of making available to the public an IP document describing a TK element or associated biological/genetic resource, on which grant has taken place on or before the said date
<b>(50) <u>Technical information</u></b>	
International Patent Classification (51)	Class, Subclass, Group or Subgroup of the International Patent Classification in which the TK element or associated biological/genetic resource has been classified
Other Classification (52)	Class or subclass of domestic or national classification in which the TK element or associated biological/genetic resource has been classified
Title (54)	Title of the TK element or associated biological/genetic resource
Prior Art documents (56)	List of prior art documents, if separate from descriptive text
Abstract or claim (57)	Abstract or claim of the TK element and/or associated biological/genetic resource

\* The Field Names and INID codes which are preceded by a single asterisk (\*) relate to those data elements which are considered to be the minimum elements which should appear in records of TK databases/registries and on first pages of IP documents which provide positive legal protection for the elements of TK and associated biological/genetic resources described in the databases/registries and documents.

<sup>1</sup> Keeping in mind the rights of communities or individuals whose independent knowledge was disclosed or filed after the date(s) of filing contained in this field.



Field of Search (58)	Field of Search
<i>(70) Identification of parties concerned with the record</i>	
Name(s) of Information provider	Name and address of the provider of information contained in the record
*Name(s) of applicant for title (individual/community) (71)	Name and address of the applicant for title concerning the TK element or related biological/genetic resource described in the record
Holder of knowledge or associated resources (72)	Name and address of the custodian of TK or associated biological/genetic resources
*Grantee(s), holder(s), assignee(s) or owner(s) of title, if any (73)	Name and address of grantee(s), holder(s), assignee(s) or owner(s) of title in the TK element or related biological/genetic resource , if any
<i>(00) Specific data on TK or associated resources</i>	
Access Conditions (01)	Conditions for Access for different users, categories and purposes to the record of the TK element or related biological/genetic resource, including socio/cultural taboos and restrictions
Approval of, and arrangements with, holder(s) (02)	Approval of, and arrangements with, the holder(s) of the TK or related resource concerning its compilation, dissemination and application, if any and if required
Scientific Name(s) (03)	Scientific name of genetic and biological resources
Vernacular Name(s) (04)	Vernacular name of genetic and biological resources in local language(s)
Descriptors (05)	Detailed description of the TK element, ethnomedical categories, and genetic or biological related resources
Keywords (06)	Index terms and keywords by which the TK element and related biological/genetic resources were indexed
Bibliographic references (07)	Bibliographic data on publications which have disclosed the TK element and associated genetic or biological resources to the public
Language (Code) (08)	Language in which the TK element and related resource were originally described

### III.1.2 Metadata standards

Metadata gives details about the data and is stored in a repository containing detailed description about each data element. By using the format described in the metadata depository the same data management principles can be applied to the data independent of its location. Some of the metadata standards followed at international level are Dublin Core, Digital Object Identifier (DOI), etc.

### III.1.3 Terminology and vocabulary standards

A specialized problem concerning TK databases and registries is the correlation of TK subject descriptions related to plants, animals, minerals, diseases, properties, indication, procedures, etc, with modern terms. In some cases it may be difficult to find appropriate correlations and one may have to use TK terms with appropriate explanation. For example, in databases which aim at defensive protection and which are used by patent examiners for prior art searches, patent examiners often spend considerable time and effort trying to translate scientific/common names of medicinal plants into the vernacular names of local languages, in which the disclosed traditional uses of those plants are documented and articulated. The effectiveness of tools to reduce this translation time and to ensure accurate translation will depend on standards for providing lists of terms, either in structures (thesauri) or alphabetical listings (controlled vocabularies), which can be used to describe the genetic or biological resource. Existing databases of plant genetic resources for food and agriculture, such as the System-wide Information Network for Genetic Resources (SINGER) of the Consultative Group on International Agricultural Research (CGIAR) include local names of the genetic resources included in the databases and deploy their own standards to ensure interoperability. However, there are currently multiple standards and there is a lack of consensus on their use (although two formal standards exist, ISO 5964 and ISO 2788). Given that international databases compile information from various language regions, the controlled vocabularies would have to be available in multiple languages, which is not presently the case.

## III.2 Technological Standards

### III.2.1 Data format standards and languages

XML encodes a description of a document, storage layout and logical structure with a document type definition (DTD). It provides a mechanism to combine structured and unstructured information content. It also permits to automatically process XML documents and to let XML processors know how to process. Therefore, XML is recommended as the information exchange standard.

### III.2.2 Image and audiovisual format standards

TK databases may be created out of codified and/or oral knowledge. Therefore these databases will have to standardize image and audiovisual data format standards. Databases of oral TK will often be special databases where audiovisual information about traditional knowledge and genetic resources and their holders are stored. The Workshop recommends the following standards to be used for storage of the data:

Data type	Format
Monochrome	TIFF, Group IV CCIT
Color	GIF/JPEG
Multimedia	MPEG

### III.3 Security Standards

Security on transmission of information and access control for databases have been emphasized by various stakeholders as important preconditions which make databases and registries appropriate tools for the conservation and protection of TK and biological/genetic resources. Certain technical issues related to security measures in the digital environment have been addressed under Articles 11 and 12 of the WIPO Copyright Treaty (WCT) on ‘Obligations concerning technological measures’<sup>2</sup> and ‘Obligations concerning rights management information.’<sup>3</sup> In this regard, the use of digital watermarking and electronic rights management (EMR) as a technological protection measure for databases of TK and associated biological/genetic resources may be an area for further discussion.

## IV. ISSUES FOR FUTURE WORK

1. WIPO should facilitate the organization and exchange of information on a worldwide basis relating to relevant legal and policy initiatives and instruments, including appropriate international *sui generis* standards.
2. WIPO should facilitate the organization and exchange of information regarding:
  - (a) the development of a roster of experts from various traditional knowledge systems as well as modern scientific and technological systems;
  - (b) databases and registries of traditional knowledge and associated biological/genetic resources;
  - (c) programmes and experiences of documentation, access and benefit-sharing.

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<sup>2</sup> Article 11, WCT, provides that: “Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.”

<sup>3</sup> Article 12, WCT, provides that  
“(1) Contracting Parties shall provide adequate and effective legal remedies against any person knowingly performing any of the following acts knowing, or with respect to civil remedies having reasonable grounds to know, that it will induce, enable, facilitate or conceal an infringement of any right covered by this Treaty or the Berne Convention:  
(i) to remove or alter any electronic rights management information without authority;  
(ii) to distribute, import for distribution, broadcast or communicate to the public, without authority, works or copies of works knowing that electronic rights management information has been removed or altered without authority.  
(2) As used in this Article, "rights management information" means information which identifies the work, the author of the work, the owner of any right in the work, or information about the terms and conditions of use of the work, and any numbers or codes that represent such information, when any of these items of information is attached to a copy of a work or appears in connection with the communication of a work to the public.

3. WIPO should promote an alternative dispute resolution mechanism involving intercultural experts to address disputes, such as those arising from (a) international and trans-community distribution of TK, (b) the diversity of social and legal systems, including customary laws, and (c) the requirements of intellectual property protection (such as novelty, inventiveness and industrial applicability in the case of patents).

4. Tiered levels of access authorization have been identified as a possible means for managing the intellectual property implications of establishing, using and partially publishing databases and registries of TK and associated biological/genetic resources. Among the databases referenced in the Appendix of this document, the StoryBase and Honeybee Databases are or will be based on tiered levels of access.

5. Most existing databases contain bibliographic information about publications related to the TK and associated biological/genetic resources in the database. In order to enable interoperability in this area, the databases may require standards and cataloguing rules for providing details of textual and other content-based material including printed books, serial publications, cartographic material, printed music and audiovisual material. WIPO has developed a standard which is intended, *inter alia*, to standardize the way in which the references to such materials should be presented in patent documents. The standard consists of a Recommendation for the Inclusion of References Cited in Patent Documents (WIPO Industrial Property Documentation Standard No. 14, or ST.14). ST.14 also includes references to relevant ISO standards. WIPO should examine the applicability of ST.14 to references cited in databases of TK and associated biological/genetic resources and, if applicable, recommend it for the inclusion of references cited in databases of traditional knowledge and associated biological/genetic resources.

6. With the increasing use of databases and registries for TK protection and an increase of IP information on TK and associated biological/genetic resources, two further problems are likely to occur as rights information on this subject matter grows:

- (1) which means can be used to uniquely identify an individual record: for example, in the case of issuance of an IP title for a TK element, and a subsequent amendment to the title, two records may refer to the same object. Future work should address how to identify each record uniquely.
- (2) how can related records be associated to create families of records, i.e. groups of records referring to the same object: for example, how could different records related to the same medicinal plant be associated? A similar question exists in the patent field, where the different records of the same patent family are related to the same invention.

[Appendix follows]

Appendix

Objectives, Functionalities and  
Technical Specifications of Databases and  
Registries of TK and Genetic/biological resources

<u>Objective</u>	<u>Functionalities</u>	<u>Technical Specifications</u>	<u>Example Databases</u>
1. Conservation and preservation	1.1 Culturally appropriate recording, compilation and exchange of data	1.1.1 agreed and culturally appropriate Data Specification for databases and registries	People's Biodiversity Registers (PBR), Farmers' Rights Information System (FRIS), Health Heritage Database, TKDL, FRLHT Ayurvedic Materia Medica (India)
2. Defensive protection	2.1 Data search and retrieval integrated with other forms of non-patent literature	2.1.1 IPC-based classification systems for traditional knowledge	TCM Patent Database (China)
		2.1.2 Integration of traditional knowledge data with existing databases and services used in prior art searches;	Health Heritage Test Database integrated with WIPO IPDLs and PCT Search Engine, FRLHT Ayurvedic Materia Medica, Ayuta Index, (India)
		2.1.3 Text-based search and retrieval	Health Heritage Test Database (India) Biozulua (Venezuela)
	2.2 Addressing differing vocabularies	2.2.1 Thesauri, dictionaries and controlled vocabularies	TCM Patent Database (China)
	2.3 Translation to and from local languages	2.3.1 Automated translation	TKDLs (India)
	2.4 Bibliographic references	2.1.4 Data fields and standards for bibliographic references	TKDL (India) and Health Heritage Test Database (India)

<u>Objective</u>	<u>Functionalities</u>	<u>Specifications</u>	<u>Example Databases</u>
3. Positive protection	3.1. Information exchange on intellectual property titles granted for TK and genetic resources – or other intellectual property-related mechanisms.	3.1.1 Data fields and standards for: - right holder - knowledge holder - claims or other definition the protected subject matter; - date of application and of grant; - information on maintenance and use of rights, etc.	- TCM Patent Database (China)
		3.1.2 Agreed data standards for rights information	None for traditional knowledge specifically
4. Full stakeholder involvement	4.1 Capacity building and financial, legal and technical assistance	4.1.1 “Toolkit” on the intellectual property aspects of documentation and database projects;	None
		4.1.2 Accessibility and affordability of hardware and software (both operating systems (e.g. Linux) and database software)	ICONS (United States of America)
	4.2 Stakeholder-identification and -participation in database and policy development	4.2.2 Consultations with indigenous and local communities	National Innovation Foundation (NIF) (India), “StoryBase” (United States of America)
5. National and local control of databases	5.1 Decentralized functioning and architecture of information networks	5.1.1 Distributed database software	ICONS (United States of America)
		5.1.2 Access control software	“StoryBase” (United States of America)
		5.1.3 Security protocols (e.g. firewalls, using SSL, if the database is accessible through Internet websites...)	TKDL (India)
6. International recognition of defensive and positive protection of traditional knowledge	6.1 International information exchange systems	6.1.1 Networked environment for traditional knowledge databases	None
		6.1.2 Data standards for data exchange (eg XML interfaces)	None