

Sri Lanka National Bibliography; the Path Ahead in the Digital Age

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Abstract

The growth of digital media over the past few decades has resulted in questioning the role of National Bibliographies. The International Federation of Library Associations and Institutions (IFLA) has therefore reviewed innovative practices observed across the globe, and proposed new guidelines. This article reviews the IFLA report (IFLA, 2022) and investigates the application of ICT on national bibliographic landscapes in other recent literature as well. The objective is to clear the path for future action towards continuing the Sri Lanka National Bibliography (SLNB) compiled by the National Library of Sri Lanka (NLSL) with a strong foundation, added value and enhanced usability.

1. Purpose of a National Bibliography

As Bell (1998) describes, a current national bibliography (NB) is a mirror that reflects the culture of a country. Currently it is defined as a collection of the authoritative and comprehensive records of the national intellectual output of a country. A NB should be published regularly, and with the least possible delay. It is produced in accordance with international standards by the national bibliographic agency (NBA).

Users of a national bibliography can vary. There can be a wide range of user groups of national bibliographies, contributing as consumers or managers of bibliographic descriptions (IFLA, 2022, p. 39). Therefore, the NB should be able to cater to all these communities. Some categories of prospective users and their anticipated requirements have been listed below.

- Librarians and bibliographers (bibliographic verification, acquisitions and metadata sharing)
- Researchers, and historians (an aid to research)

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- Business users (Booksellers for bibliographic verification and ordering; Publishers using it as a marketing or promotional aid and for obtaining standardized metadata; Bibliographic utilities who remarket bibliographic records for profit)
- Online information aggregators who rely on authoritative metadata (eg: Wikipedia and Google Scholar)
- General public (general awareness on new publications)

2. Effect of ICT on National Bibliographies

ICT has enhanced the existing features and enabled new functionalities. For example, the most basic requirement of a national bibliography is the searching and browsing facility. An online search improves the user experience by several folds than searching on a physical book or an electronic file. Search requirements may include creator name, title, language, imprint, subject headings or keywords, publication type, genre, and format, and standard identifiers (e.g. ISBN, ISSN).

In the recent publication, IFLA presents the effect of ICT on NB the following way.

“Advances in technology, the growth of the web and a multitude of electronic information resources and consequent changes in publishing have inevitably changed the scope of national bibliographies. Such developments, combined with advances in search-engine technology and the advent of new approaches such as linked open data require a reappraisal of national bibliographic services.” (IFLA, 2022).

IFLA had expressed the need and alarmed on the developments from a long time. For example, in 2010, the IFLA working group on Guidelines for national bibliographies in the digital age encouraged the National Bibliographic Agencies (NBA) to exploit all available technology to support the creation and maintenance of the national bibliography (“2010 A Changing Context – the IFLA Working Group on Guidelines for National Bibliographies in a Digital Age,” n.d.).

In the 2012 Warsaw conference titled “Bibliography in the Digital Age”, following themes discussed in relation to bibliographic control.

- Automated data creation and enhancement.
- Web harvesting.
- Large scale processing of e-publications
- Growth in the use of ontologies and controlled vocabularies
- Semantic approaches which the attention moved from MARC tags to RDF triples
- Development and maintenance of persistent links and identifiers
- Linking between resources

3. Responsibility of the National Bibliographic Agency

According to the IFLA Professional Statement on Universal Bibliographic Control (2012), the national bibliographic agency (NBA) is the organizational unit established within a country's library system. The NBA undertakes responsibility for the preparation of bibliographic records for each new publication issued in the country. These records should be in accordance with accepted international bibliographic standards. These must be published with the shortest possible delay in a national bibliography, which should appear on a regular basis.

4. Sri Lanka National Bibliography (SLNB)

In Sri Lanka, the role of the NBA is performed by the National Library and Documentation Services Board (NLDSB) or as commonly known the National Library of Sri Lanka (NLSL).

Sri Lanka National Bibliography (SLNB) is the only authoritative record of current publishing in Sri Lanka. It was compiled and published by the Department of National Archives from 1963 to 1973. Since 1974 SLNB is compiled and published by the National Library.

It is published as a print copy, and is also available as soft copies of the print version in PDF version on the National Digital Library of Sri Lanka. Since 1994, it changed its frequency from quarterly to a monthly publication. The SLNB includes information on printed publications, audio-visual materials, first issue of newspapers and serial publications, reprints with ISBN and ISMN numbers, unpublished postgraduate theses. Pre-publication information is included as a separate section titled "Catalogue of Forthcoming Publications". It includes Sinhala, Tamil and English language publications. Retrospective and cumulative volumes have also been published.

National Library uses the open source Koha Library Automation software to automate its catalog. The National Digital Repository is maintained on DSpace Digital Library environment. Creation of Metadata is carried out by the Bibliographic Control division of the National Library of Sri Lanka (NLSL). Therefore, the metadata creation is fairly consistent and standardized. The NLSL took a significant step towards standardization by introducing a Descriptive Bibliographic Framework (DBIB) with selected MARC 21 tags for Monographs. It continues to prepare frameworks for other formats as well (Gamage et al., 2020). It is mandatory to provide pre-publication data by authors and publishers at the time of obtaining the ISBN, ISSN and ISMN. Therefore, the catalog, digital library, pre-publication data and the national bibliography are separate entities, lacking integration.

5. Legal deposit in Sri Lanka

Legal deposit is closely connected with the collection development of the NBA of a country, and thus the creation of the NB. According to the provisions of the current law, the responsibility of the legal deposit lies with the Sri Lanka National Archives (SLNA). NLSL receives one copy of each publication added to the collection.

The SLNA mainly collects print materials while TV and radio broadcasts are collected at the TV and radio stations. The Sri Lanka Rupavahini Corporation (SLRC) and the Sri Lanka Broadcasting Corporation (SLBC) are the de facto audio-visual archives in the country,

but mainly limiting to their own productions. However, with the introduction of the new Legal Deposit Act (*DNA*, 2019), the legal deposit process is expected to be changed. The NLSL and the SLNA are expected to share the responsibility of collecting copies of different formats.

6. IFLA Recommendations

The following section draws recommendations mainly from the IFLA (*IFLA*, 2022; *IFLA Professional Statement on UBC*, 2012; IFLA Working Group on Guidelines for National Bibliographies, 2008a). Citations and examples from other sources also have been presented whenever required.

6.1. Recommendations based on the diversity of NBA

As IFLA states, there is no rule to make the national bibliography an integral part of the catalog of the national library. However, it specifies that if the national bibliography is a part of the main catalog or a union catalog, users should be able to search within that segment, distinct from any institutional or union catalog as well.

In some countries, the National Library is also an institutional library, for example in a University, Legislature, or other government institutions. In such a case, the IFLA iterates that the institutional and national roles should be distinctly identified, and prominence should be given to bibliographic functions.

Responsibility for national bibliographic control is not always centrally handled. For example, textual collections could be developed at the national library, while film, TV and broadcast archives are located elsewhere. IFLA states that, when several organizations share responsibility of the legal deposit collection, they should also share the responsibility of creating the national bibliography (*IFLA*, 2022).

The NBA cannot succeed in their efforts unless efficient cooperation with publishers, media producers, and distributors is also established. These organizations can reap benefits of timely and continuous depositing of their publications by getting a higher visibility to their publications. On the other hand, NBA will be saving time and energy spent on otherwise repeated work such as scanning print copies. A born digital copy too could be available, for either hosting in-house or making available on an external server.

6.2. Delivery and promotion of national bibliographic services

IFLA (2022) states that the current trend is to provide access to the national bibliographies via the web. It is important to provide a clear and direct link to the national bibliography from the NBA's website home page. Some NBAs are using RSS feeds to disseminate information on newly-published works. Thus, different RSS feeds can be created to tailor to specific interests of prospective beneficiaries. Similarly, a "new books" webpage or website can call attention to recently released publications in the country. It is also important that the national bibliography is harvested by major search engines such as Google and Yahoo, while ensuring that the provenance of the records is clearly indicated.

Since national bibliographies (or the institutions providing them) are often publicly funded, there has been a growing demand for them to be seen as national data assets. Thus it has been necessary to make metadata freely available under open licensing terms. At the same time, it is necessary to make them available to the developer communities for free or a fee. However, it is understood that catering to two different communities who doesn't understand much on each other's language is challenging.

6.3. Intellectual property rights

When it comes to metadata, there would not be much concern on the ownership or copyright, except for links to full text. However, when depositing digital publications is concerned, there is much speculation among publishers and creators on their security and access control. Therefore in that sense, NBA should work with publishers and creators to build confidence on the control of access (IFLA Working Group on Guidelines for National Bibliographies, 2008b).

6.4. Selecting a Business Model

Considering the lasting benefit of the investment, IFLA advises the NBA to consider the costs of implementing the national bibliographic service as capital cost. Cost for delivery can be considered a recurring cost. Although usually the return on investment cannot be shown in monetary terms, applying a business model is also an option.

The business model may vary on various factors. If the NBA decides to earn income from the activity, at least to cover costs, there is the option to charge for a searchable database from the subscribing institutions, and make the PDF version of the serial publication available free of charge for the general public.

A compilation of free and fee based services offered by various other NBAs have been given below.

Table 1: Free and fee based services offered by some NBAs of the world (Source: Compiled by the author based on Alpignano et al., 2022; IFLA, 2022; Lucarelli, 2022; Wos Bellini, 2022). Used NA when there is no evidence for fee based services. Notes have been given below the table.

Country	NBA	National Bibliography	Modes	Free services	Fee based services
Canada	Library and Archives Canada (LAC)	Canadian National Bibliography (Canadiana)	Library's online catalogue (Aurora). Included in the national union catalogue (Voilà).	MARC 21 records for selected government publications freely downloadable.	Other MARC records only available to libraries with a cataloguing subscription to OCLC WorldCat.
France	Bibliothèque nationale de France (BnF)	Bibliographie Nationale Française	A distinct publication on the BnF website	Records downloadable. Also accessible via Z39.50 and SRU.	Provides a MARC records distribution service on subscription basis ^a .
Italy	Biblioteca Nazionale Centrale in Rome and Florence	Bibliografia nazionale italiana (BNI)	Online catalogue	Records downloadable in PDF, UNIMARC, and XML	NA
Lithuania	National Library of Lithuania	Lithuanian national bibliography	Online catalogue	Records downloadable. Also available via Z39.50	The published national bibliography available on subscription basis.
Sweden	National library of Sweden	Swedish national bibliography (Svensk bokförteckning)	Online catalogue	Freely accessible. ^b	NA
Switzerland	Swiss National Library (SNL)	The Swiss Book	Online catalogue (Helveticat). ^c	Freely accessible.	NA
United Kingdom	British Library	British National Bibliography (BNB)	Online Catalog. ^d	Freely accessible.	Offers a range of fee based options.
Denmark	Danish Bibliographic Centre (DBC)	Danish National Bibliography	Union catalogue	Freely accessible. ^e	NA

a. It is free for the French public libraries. Retrospective files or customized files available for variable prices.

b. National bibliography accessible as part of Libris, the national union catalogue of research libraries.

c. A bi-monthly free PDF version is available.

d. Under the UK Cataloguing-in-Publication Programme (CIP) information on new titles appears up to 16 weeks ahead of the announced publication date.

e. A common metadata repository referred to as the 'Danish National Data well' exists to support access. Batch files are provided for download on a weekly basis. Uses shared cataloguing.

7. Standard practices in contemporary National Bibliography creation and maintenance

This section uses recommendations and examples from various literature. It mentions the tools and practices that we already use as well as some state-of-the-art technologies yet to be initiated in the Sri Lankan context.

7.1. Sharing, reusing and repurposing of metadata and authority data

Efficient reuse of metadata is a rule of thumb in modern bibliographic control. Therefore, metadata across catalogs, and NBs should be standardized and consistent. IFLA recommends that the NB and the catalog of the NBA should be derived from a single logical data set (IFLA, 2022, p. 31). This enables the integration of workflows across products. Pre-existing metadata can be reused at collection development, description and retrieval stages. This makes automation of all stages easy and error free. It also enables cross organization sharing of metadata and authority data; for example, by other communities such as museums and archives.

7.2. Adherence to software standards

Online national bibliographies can be directly accessed by software applications. These applications can belong to other libraries and cultural heritage institutions, commercial agencies, metadata aggregators, publishers and others that benefit from using high quality metadata derived from the national bibliography (IFLA, 2022, p. 44). Such applications include federated or distributed searching and harvesting tools. An example is the proposal to develop a union catalog using the VuFind resource portal (Jayakanathan & Gamage, 2015, 2019).

Specifically, cross-sector information system requirements may include...

- Distributed searching using ANSI/NISO Z39.50 or SRU/SRW.
- A central index, created and maintained by harvesting with OAI-PMH.
- An RDF triple store for use via the Linked Data API or a SPARQL endpoint.

Such usage requires additional technical and security requirements to be implemented when developing a functional online national bibliography.

7.3. Adherence to bibliographic standards

In bibliographic control of resources in NBs, cataloging rules, authority control, subject indexing standards are essential to be maintained. In addition, a detailed discussion on metadata formats, script conversion, character sets etc. is out of the scope of this article.

7.3.1. Cataloging rules

To date, Sri Lankan libraries are following the AACR II cataloging rules as the main cataloging standard. However, it is important to decide on concurrent transition to Resource Description and Access (RDA), the next level set of rules to conform to the international standards. Having said that, it should be noted that in the recently introduced DBIB Framework (Gamage et al., 2020), the NLSL has used some metadata fields corresponding to RDA. The RDA Registry contains linked data representations of all the elements provided for RDA, which helps to 'find' materials not only searched by the user, but also automatically linked based on descriptors.

The world is now moving into linked data. For this era, MARC 21 format which was originally designed when electronic data was just a stand-alone entity is insufficient. Therefore, BIBFRAME, short for Bibliographic Framework had been introduced. This model is more than a mere replacement for the library community's current MARC format (Miller et al., 2012).

The collection of Semantic Web technologies (RDF, XML, OWL, SKOS, SPARQL, etc.) provides an environment where Web applications can query that data, and draw inferences using vocabularies (*Linked Data*, n.d.; "RDF vs XML," n.d.). These techniques have been used by some National Bibliographies (See examples in section 8).

7.3.2. Authority control

The MARC 21 Format for Authority Data is a popular format for the representation and exchange of authority files in Sri Lanka. In Sri Lanka, NLSL is taking a lead in adoption of this, which may set an example for other libraries. With RDA being popular as an internationally used set of cataloging rules, RDA authority control requirements can also be adopted.

7.3.3. Subject indexing

The Library of Congress Subject Headings (LCSH) is popularly known for selection of subject headings. There is a search interface to select the best suited headings for a given material. There are non-English based subject headings lists also, such as the Nuovo Soggettario (Italian),

RVM (French language system developed in Canada), RAMEAU (French language system developed in France). A project titled Multilingual Access to Subjects (MACS) was carried out by British, German, French, and Swiss national libraries to assist users to search across languages. Sri Lanka is yet to develop a local language thesaurus which can be used by libraries for assigning subject headings. Although various print and online thesauri are available, they have not been designed for this purpose.

As Lucarelli (2022) mentions, the relationship between terminology experts and librarians engaged in subject indexing is weak. Therefore, it is time for Sri Lankan library science experts to invite the information science experts to collaborate and generate new and innovative national bibliographies.

8. Few examples of extensive use of digital technologies

It would not be complete if I do not provide some real-world examples of integrating new ICT based solutions in designing National Bibliographies. I am outlining a few examples from Germany and Italy.

Figure 1 is showing the interface of the catalog of the German National Library. In addition to viewing connected publications, it is also possible to move to the French language subject headings RAMEAU. Also, it is possible to browse towards Library of Congress Subject Headings (LCSH) where works about the same topic can be explored in the catalogue of the Library of Congress (Lucarelli, 2022).



Fig.1: A search result displayed on the catalog interface of the German National Library (German Version).

After selecting the publication, it provides a link to linked data in RDF format (See Figure 2).



Fig. 2. Links to the XML and BIBFRAME representations, and RDF link data in the German National Bibliographic records (translated by Google).

Figure 3 shows the Nuovo soggettario thesaurus. It is the subject indexing system managed and implemented by the National Central Library of Florence (NCLF), Italy. It has been linked to the works described in the online catalogues of the NCLF and Italy's National Library Service (SBN).



Fig. 3: When the thesaurus was searched for the word ‘computer’, the preferred term in Italian was shown.

See direct links to BNCf and SBN OPAC search at the right side.

Further down in the result, links to other subject headings lists (Eg: LCSH) are given (See Figure 4).



Fig. 4: Further down of the result of searching the Nuovo Soggettario thesaurus showing links to other thesaurus, extending the search to reveal some additional resources.

Without stopping there, the thesaurus can link to other cultural heritage institutions such as museums, and galleries (See Figure 5).



Fig. 5: A section of the display of results of the Nuovo Soggettario thesaurus (Google translation)

showing links to the Uffizi Gallery and the Galileo Museum in Italy.

9. Conclusion

'National Bibliography' is an age-old concept which needs modernization. Information on new publications is 'available' on the Web. However, this availability is just an illusion since tools for identifying distributed resources from a single interface are lacking. A researcher cannot be satisfied by the few publications retrieved when searched on the Web, or even on the library catalogs. Even the best information literate person cannot find more than that, since the limitation is imposed by the generic technology used, not by a person's skill level.

At this point, it reminds me the extent to which Dr. Ian Goonetilleke's monumental work; A bibliography of Ceylon (Sri Lanka): a systematic guide to the literature on the land, people, history and culture published in 1980s, won the hearts of scholars. The said publication used the best technology and delivery method available at that time. If proper standards are followed, and technology of the time is adopted, a bibliography can serve the universe. A national bibliography does more!

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