

# CHERNOBYL-RELATED ORIGINAL DATABASES IN THE REPUBLIC OF BELARUS

by  
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## **key words:**

databases development, Chernobyl consequences, Belarus, international collaboration

## **Abstract :**

The general and specific local reasons for the lack of scientific Chernobyl-related information in Belarus are featured. The projects for home Belarusian databases creation to fill the information gaps are described as well as the already existing databases. The best prerequisite for sufficient development of these projects is international mutually beneficial collaboration; the ways of the latter are grounded and featured.

# CHERNOBYL-RELATED ORIGINAL DATABASES IN THE REPUBLIC OF BELARUS (\*)

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## 0. On the scope of the affection of the Republic of Belarus by the consequences of Chernobyl accident

Before passing to the information problems themselves it seems reasonable to remind to a reader outside the Commonwealth of the Independent States that

- 59.9% of the whole territory of the former USSR with the level of radioactive contamination with  $^{137}\text{Cs}$  of 15-40 Ci/sq. km and 69.9% of the ex-USSR territory with the level of contamination with  $^{137}\text{Cs}$  of over 40 Ci/sq. km are situated exactly in the Republic of Belarus [1];
- 20% of the whole territory of the Republic of Belarus are considered to be radionuclide-contaminated due to the Chernobyl catastrophe (including 18% of arable lands, 20% of forests and over 3 thousand of settlements) [2];
- on these contaminated territories of Belarus 2.2 mln of people live i.e. almost a quarter of the entire population of the country [2] (cf. with 1/30 for the Ukraine and 1/200 for Russia [3]);
- the calculated life-long dose of exposure on the bone marrow of an average exposed inhabitant of Belarus is 8.8 mSv as compared with 2.8 mSv for an exposed inhabitant of the Ukraine and 1.0 mSv for an exposed inhabitant of Russia [4] etc...

The above examples seem to be quite enough to conclude that the Republic of Belarus is the greatest "victim country" of Chernobyl. So, Chernobyl-related information problems in Belarus MAY be, of course, not so much specific for this country as compared e.g. with the Ukraine, but the above context make them MORE ACUTE than for any other country.

## 1. What are the information problems?

The specific lack of scientific information, possessed by Belarusian researchers involved in the studies of the Chernobyl nuclear power plant accident health hazards seemed to be inevitable due to the following reasons directly or indirectly attributed to the catastrophe as:

- the unique character of radiation exposure, caused by Chernobyl accident that made impossible an uncritical "mechanical" use of any known models of radiation health effects for sufficient predicting the radiation effects of Chernobyl;
- the shortage of knowledge in radiobiology possessed by clinical medicine scientists and vice versa;
- the absence of reliable data on the doses of acute exposure;
- scientific and mass media censorship of Chernobyl-related information till 1989 that blocked the normal dissemination of Belarusian research findings in 1986-89;
- the absence of sufficient epidemiological research backgrounds;
- postponed and not adequate reaction of the USSR scientific information institutions to the event.

These specifically Chernobyl-related issues are complicated by the general problems of information support of scientific research in Belarus. The latter are associated with the decay of the USSR and, as a consequence, the actual loss by Belarusian scientists the access to the State System for Scientific and Technical Information that became Russia's property (but not the common property of the Commonwealth of the Independent States) and with insufficient development of facilities for electronic access to international scientific information in Belarus.

## 2. Domestic specialized databases as a prerequisite for a way out

The enthusiasts accepted the challenge to solve the problem of the access to the relevant Chernobyl-related literature by means of creation domestic databases. The following databases and projects should be featured in this context.

### 2.1. "CHERNOBYLLIT": the database reflecting the worldwide relevant documentary information flow

The database called "CHERNOBYLLIT" is created by the team from the Research Institute of Oncology of the Health Protection Ministry of the Republic of Belarus. That is an abstractive database that reflects world literature on all the aspects of radiation effects on a human being and animals and on Chernobyl-related medical and biological research. Its basic source is 15 disciplinary-oriented databases of the All-Union Institute for Scientific and Technical Information (since 1991: All-Russia Institute; the Russian abbreviation is "VINITI"), i.e. almost the half of the existing VINITI disciplinary-oriented databases. Having been originally designed (far before the decay of the USSR) in order just to overcome the so-called "classification scattering" of the relevant abstracts in numerous abstractive journals of VINITI so to make the information retrieval more convenient, simpler and faster than in the vast collection of the various abstractive journals, the database "CHERNOBYLLIT" is now the only database in Belarus that reflects the worldwide relevant documentary information flows. It is due to its source and long established relations with VINITI, the collaboration with the latter being an extremely complicated business for the rest of Belarusian institutions because VINITI is a very much foreign institution for Belarusians since 1991.

However, it is known that Chernobyl-related scientific documents may be reflected in up to 29 VINITI disciplinary oriented databases [5], so the completeness of the database "CHERNOBYLLIT" in terms of the world literature is but relative. It is the best one in the country from this viewpoint, but it is not ideal. In this database there is over 30,000 abstracts of the documents published since 1986. The language is Russian. The "CHERNOBYLLIT"

was created within the framework of an R&D project supported by the Health Protection Ministry at the scope of a local database creation, replenishment and development. The major users are the researchers of the Research Institute of Oncology. Availability to the non-institutional users is free of charge, off-line. On-line access is not implemented due to financial difficulties.

## 2.2. Unique abstracts collection of Belarusian, Russian and Ukrainian literature

The database called the "Medical aspects of the Chernobyl nuclear power plant disaster" is created by the Department of the Health Protection Information Support of the Centre of Medical Technologies, Informatics, Management and Economics of Health of the Health Protection Ministry of the Republic of Belarus and located at the Republican Scientific Medical Library (RSML). This abstractive database reflects mainly the Belarusian, Ukrainian and Russia literature far more completely than the previously described database and very much in details. The following major subjects are in the headings: "general problems of radiation medicine", "medical aspects of nuclear power plant disasters" (including 'radionuclides in food', 'health state of the exposed population and the "liquidators" [Chernobyl clean-up emergency workers]', 'received doses', 'mechanisms of radionuclides effects of the human organism', 'medical-and-technical measures for overcoming the Chernobyl disaster consequences', 'radiation protection' etc.) and "clinical aspects of radiation effects on a human being" (including radiation effects on various systems of the human being, postponed effects of ionizing radiation (psychiatric, oncological, genetic, hereditary and congenital disorders), 'prophylaxis and therapy', 'radioprotectors', 'assessment of incorporated radiation doses'). Though this database is more compact than the previous one, its strong feature is the reflection of not only purely medical aspects of the problem (as stated in the above fragments of the headings), but also some social, psychological, organizational and even technical aspects -- if they are related to the health state of a human being under radiation exposure.

The sources are:

- for the Belarusian, Ukrainian and Russia literature
- the stocks of the Republican Scientific Medical Library (that warrants really comprehensive plenitude of these materials: such materials are not sufficiently complete in VINITI databases),
- for foreign literature (that is, however, no more than 30% of the whole number of abstracts)
- the stock of the same library (very much fragmentary and incomplete collection) and the databases of MEDLINE and INIS on CD-ROMs. The access to the CD-ROMs is provided free of charge by collaborating organizations i.e. the Republican Scientific Medical Library and the Republican Scientific and Educational Information Center of the Ministry of Emergency Situations. The literature since 1991 is reflected; there is over 5,000 documents in this database; the language is Russian.

The work is being fulfilled as an R&D step-by-step ongoing project supported by the Health Protection Ministry of Belarus at the scope of the creation, replenishment and development of the database (no funds for payment for the use of external information sources that charge for the access to their databases is in the budget, however), as well as of the creation and development of the software for the on-line access for the external users. By the present the local computer network of the Department of the Health Protection Information Support is created, and the funds for access to the Internet and for on-line access to the database for the external users are not provided.

The priority users are the workers of the Health Protection Ministry. The readers of the RSML are also welcome to use it free of charge. The free-of-charge available copies of the database are in operation at 3 more medical establishments.

This database is a unique comprehensive compendium of relevant abstracts of the works published in Belarus, Ukraine and Russia that may be of an interest to foreign researchers.

The specialists of the Centre of Medical Technologies, Informatics, Management and Economics of Health also published (4 times a year) a printed compendium of the abstracts that were currently included in the database. Since 1995 they launched a periodical under the same title as the database that, besides the abstract section, also includes the full texts of state regulations and Health Ministry instructions dealing with overcoming the medical consequences of Chernobyl and relevant original papers and reviews. It is also published 4 times a year.

### 2.3. Chernobyl-related database of universal content is being created

The project called "Chernobyl" is being fulfilled by the team from the National Library of Belarus (of the Ministry of Culture of the Republic of Belarus). This project presumes 1) publishing a current bibliographical index "Chernobyl" and 2) putting in operation the database of the same content and under the same title at the National Library. The first part of the project is in operation, the second part is close to accomplishing.

The database being created is a bibliographical one, and, in the best cases, very short annotations of the documents are attached to the bibliographical descriptions. It reflects the literature on ALL THE ASPECTS of Chernobyl catastrophe and overcoming its consequences.

The selection of the literature is strictly determined by the basic source of the information: the literature subscribed, purchased or received by the National Library. That means: 1) a certain slant to scientific literature in SOCIAL SCIENCES AND HUMANITIES (the National Library is REALLY responsible for the literature in social sciences and humanities, but not the in natural or technical sciences and it is understandable that medical and ecological subjects are not in the list of priority subjects of this library); 2) the greatest thematic plenitude of reflection of the problem since despite the mentioned gaps the stocks of the most universal library are reflected, and there is no other database in Belarus that reflects e.g. such subjects as "Chernobyl in literature and art" or "Chernobyl and church"; 3) the reflection of newspaper articles from the majority of the Belarusian newspapers and magazines starting from the "rayon" level (\*\*\*) ; 4) rather a small proportion of the foreign literature being reflected (approx 10% according to our rough calculations) alongside with a good reflection of Belarusian, Ukrainian and Russian materials. The literature since 1990 is reflected. There is over 12,000 documents in this database (a strong prerequisite for such an amount is the inclusion of newspaper and magazine articles).

The language is Russian; the availability will be free of charge (certain parts of the data are already available for computer retrieval).

The project is being fulfilled as a part of the routine work of the bibliographic department of this library and one person from the automation department.

There is an on-line access to the National Library electronic catalogue for the affiliated libraries of the "oblasts" (\*\*\*) that was created in 1995 within the framework of the project "Dissemination of the information about the new literature items entering the National Library" (supported by the "Eurasia" Foundation with financing from the United States Agency for International Development) that can be used for the on-line access to this database after its accomplishing.

#### 2.4. "Chernobyl Digest": the only bilingual project

Finally, the project entitled "Chernobyl Digest" (formally "Chernobyl Index"). This project is being fulfilled by the team grouped around the Ministry of Emergency Situations of Belarus in collaboration with the Institute of Cytology and Histology and the Belarusian National "Man and the Biosphere" Committee. Within the framework of this project the annual collection of the abstracts are published, but we have no information on the availability of a computer retrieval at the moment.

Exclusively the Belarusian, Ukrainian and Russia literature on the following Chernobyl problems is reflected: 1) "General radioecological problems"; 2) "Nature" (including "animated nature", viz. "soil" and "water" and "living nature", viz. "flora + fauna", "microorganisms", "plants" and "animals"); 3) "Man" (including "general radiomedicine problems", "adults" and "children") and 4) "Society". The collection is rather compact, and the book of 1993-94 abstracts contains just 256 extended abstracts in Russian (cf. with 1434 bibliographic items in the last published issue of the "Chernobyl" bibliographic index that reflects the materials for half a year). Only the materials DIRECTLY related to the problems of Chernobyl are reflected (since 1989).

In contrast with the other projects, the literature is abstracted BOTH in Russian and English (the literature of 1991-92 -- only in Russian). However, if the Russian-language version is perfect in terms of the abstracts quality, the English-language version contains not so detailed abstracts and not all the abstracts are translated in English.

### 3. On the potential development of Belarusian databases in the international context

It is very much characteristic for the present situation about information service in Belarus that no sufficient financing from the State is expected. The plentiful examples of the international assistance to Belarusian libraries give us the grounds to say that today the international assistance and -- especially -- cooperation is possibly the more realistic way of the development of home information system, which, in their turn, may produce a competitive commodities for foreign users.

#### 3.1. International dimension of "CHERNOBYLLIT"

The international dimension of the database "CHERNOBYLLIT" lies principally in its content: "CHERNOBYLLIT" is the only home database that relatively completely reflects international scientific literature. That is why it is of an utmost importance for Belarusian users, but its information output seems to be hardly a competitive commodity for the foreign users who are able to use alternative sources for information retrieval of worldwide literature. As for the literature of the ex-USSR, it is well-known that VINITI abstractive journals and databases reflect it with insufficient completeness and a lot of sources have been a priori considered as not necessary for abstracting since it was supposed that they are available at every local library. It ought to be mentioned that the "CHERNOBYLLIT" team applied to the "Eurasia" Foundation (that supports the winners with financing from the United States Agency for International Development) with the project proposal in 1995. Though it has not occurred to be amongst the winners, this way seems to be the right way to be taken, and the very important feature of the project proposal submitted by the "CHERNOBYLLIT" team was that a network for the users outside the Institute of Oncology was planned to be created, the computers and

modems for the users from the major relevant research institutions as well as funding for the corresponding software to be installed at the Institute of Oncology was in the proposed budget.

### 3.2. "Medical aspects of the Chernobyl nuclear power plant disaster" as a potential source of relevant information for the users outside ex-USSR

The database "Medical aspects of the Chernobyl nuclear power plant disaster" is the most complete source for information retrieval of (basically) scientific medical literature on Chernobyl and Chernobyl-related problems published in Belarus, the Ukraine and Russia. From the viewpoint it is of a potential interest of the foreign users who search for the results of the studies fulfilled by the researchers from these countries mostly affected by Chernobyl. Bearing this in mind, the team who created this database also applied in 1995, in collaboration with the author of the present paper, to the "Eurasia" Foundation with the project proposal for launching the English version of this database. Though the team has not succeeded, this attempt seems not only to be the right way for the project development (bearing in mind the insufficient home financing mentioned in 2.2.), but, primarily, a good prerequisite for the creation of the competitive information commodity for foreign users.

The future proposal apparently ought to include also works on network development (likewise the "CHERNOBYLLIT" team did).

As for the periodical "Medical aspects of the Chernobyl nuclear power plant disaster" that publishes, besides abstracts from the database of the same name, also reviews, surveys, problem original papers and state regulations related to Chernobyl consequences in Belarus, this periodical, if being published in English (the subject of rather an old project that has never been financially supported), could be very interesting for the foreign colleagues who fulfill the similar research or just interested in post Chernobyl problems. Possibly, there will be a remedy for it, too, based e.g. on a joint project proposal to be submitted to some international research completion program. Such a project, in order to acquire the really scientific status, might be supplemented with scientometric research of Belarusian, Ukrainian and Russian literature. There are good methodic and ideological (but not financial) prerequisites for such a work at the moment.

I don't think that it is so bad that no cooperation between the databases "Medical aspects of the Chernobyl nuclear power plant disaster" and "CHERNOBYLLIT" exists at the present moment. It is quite normal to have the alternative competitive databases, which of them has its own strong features.

### 3.3. "Chernobyl" as a potential means for bibliographic retrieval of some less common Chernobyl-related publications (of ex- USSR origin) for foreign users

Due to the same reasons that were featured in 3.2. the information on Belarusian, Ukrainian and Russia literature that is contained in "Chernobyl" database and in "Chernobyl" bibliographical index may be as valuable for foreign researchers as the information processed by the previously described database. The "Chernobyl" project has its own disadvantages (very short or no resumes), but its thematic content makes it a unique means for retrieval of some less common Chernobyl-related issues (like "Church and Chernobyl", "Art and Chernobyl" etc.) The main condition for such status of this project is the same: the English version to be created.

One more advantage of this project for both Belarusian users and potential foreign collaborators is the greatest thematic scope of reflected subjects, the reflection of Belarusian

newspaper and magazine articles. It is very likely that, in case of the foreign users interest to these materials, the necessary investments would be concentrated on the creation of the English version.

### 3.4. "Chernobyl Digest" enjoys international collaboration

Despite the demerits mentioned in 2.4. and rather a small amount of the abstracted literature, the project "Chernobyl Digest" is the only one that gained the financial support from abroad (i.e. from the UNESCO Ecological Department) in addition to the support of the Ministry of Emergency Situations of Belarus. However, our opinion is that its only strong feature in the context of the problems under discussion is a very good reflection of the "Society" subject. The "lucky faith" of this project allows us to hope that the projects ""Medical aspects of the Chernobyl nuclear power plant disaster" and "Chernobyl" which seem to deserve more favor WOULD find their place in the international mutually beneficial cooperation.

### 3.5. On the possible role of Belarusian Library Association and its bodies in potential international collaboration of Belarusian Chernobyl-related databases.

Since international collaboration seems to be the most steady way for the development of Chernobyl-related Belarusian databases, one of the targets of this paper, written by the Chairman of the Committee for International Liaison, Belarusian Library Association, is to provoke your interest for collaboration with these projects: the Belarusian database creators need more promotion of their products on the international area, but maybe they also need some counter-proposals from abroad as the result of being better known on the international level. For this purpose, as well as for the purpose of sending any relevant opportunity information you are kindly welcome to use the BBS of Belarusian Library Association that works within the framework of the project entitled "Creation of the information service of Belarusian Library Association" (supported by "Eurasia" Foundation). All the proposals of Chernobyl-related information and of any collaboration on this point would be most gratefully accepted at < csl@bas19.basnet.minsk.by > or may be sent directly to the billboard at < news@basnet.minsk.by >; newsgroup: basnet.news.bla .

In this context it must be mentioned that Bibliography Committee of Belarusian Library Association whose Chairperson Alla Muravyeva who is a team member of "Chernobyl" project prepared a brief survey of all the original (not only Chernobyl-related) databases that exist in Belarus. In case of a reader's interest in this survey.

her address is:

A.V. Muravyeva  
National Library of Belarus  
9 Krasnoarmeyskaya St.,  
Minsk, 220636, Belarus.

Should you be interested in a joint project proposal that is devoted not only to Chernobyl-related databases, periodical or bibliographical index in English, but also to scientometric/bibliometric analysis of abstracted literature, you are welcome to address directly to the author of the present paper ( e.g at: < lazarev@belal.belpak.minsk.by >).

Belarusian Library Association is open for international collaboration and will readily do its best to arrange a necessary framework for collaboration in the featured area (\*\*\*\*).

## 4. Conclusions

1. The specific shortage of Chernobyl-related scientific information in Belarus was inevitable due to various above-listed reasons.
2. The local databases that were created more as a matter of enthusiasm than as supported projects to fill information gaps have a lot of merits, but still need further development.
3. The realistic way of this development is international cooperation. The unique collections of abstracts of scientific relevant literature of such the ex-USSR countries as Belarus, Ukraine and Russia could be available to the international community as one of the outcome of such a cooperation to the mutual benefit.

Endnotes:

(\*) This paper is a version of a part of the author's presentation "Lack of Chernobyl-related information in Belarus and domestic databases" at the International Conference "Information Technology in the Human Services: Dreams and Realities" hold on June 11-14, 1996 at the University of Lapland, Rovaniemi, Finland.

(\*\*) This paper is written in the framework of the author's activity as the Chairman of the Committee for International Liaison of Belarusian Library Association. The Association which is a SOCIAL professional organization does not have any steady postal address and the author requests kindly to use his home address (14 Osipyenko St. ... etc.) for correspondence.

(\*\*\*) Belarus consists of 7 major administrative regions -- 6 "oblasts" and the City of Minsk. In their turn, "oblasts" consist of "raions".

(\*\*\*\*) You might read more about Belarusian Library Association from its homepages that can be reached at: < <http://alexia.lis.uiuc.edu/~lapo.bla.html> > and < <http://kolas.bas-net.by> >

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ANNEX: Contact addresses of the projects representatives

1. "CHERNOBYLLIT" (Dr.Valery Ye. Kratenok):  
Research Institute of Oncology  
post office "Lesnoye"  
Minsk, 223052, Belarus;
2. "Medical aspects of the Chernobyl nuclear power plant disaster" (Nikolay Ye. Kheifits):  
Department of Information Support Centre of Medical Technologies, Informatics,  
Management and Economics of Health  
28 Fabritsiusa St.,  
Minsk, 220007, Belarus;
3. "Chernobyl" (Alla V Muravyeva) --see 3.5.
4. "Chernobyl Digest" (Prof Gennady A. Nesvetailov):  
Chernobyl Digest  
Institute of Genetics and Cytology  
27 Skoryna St.,  
Minsk, 220072, Belarus.