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Dear Reader,

On April 9, Iranian President Mahmoud Ahmadinejad proclaimed during the Nuclear Technology Day festivities, "I proudly announce that as of today Iran is among the countries which produce nuclear fuel on an industrial scale." Iran assures that its nuclear programme is strictly peaceful. "To date, no deviation from the peaceful nature of Iranian nuclear programme has been recorded," Ahmadinejad emphasized. The President said that Iran would not bow to the world community's pressure and would keep on implementing its nuclear programme. According to him, some States around the world have been using the UN Security Council as a political tool in an attempt to prevent Iran from mastering advanced know-how, nuclear technology in particular.

The U.S. has already called that Tehran statement "another case of defiance", now that the UN Security Council unanimously approved the 24 March Resolution toughening the sanctions against Iran in order to coerce it to halt its uranium enrichment activities.
In late May the IAEA Director-General ElBaradei will again report on the Iranian nuclear programme, pursuant to UN SC Resolution 1747 of 24 March. Following a consideration of his report, further decisions will be adopted with respect to Iran.

Russia and China, supporters of the milder approach contemplating but economic pressure on the defiant country, are having a hard time indeed. Experts discuss the likelihood of the U.S. venturing upon the use of force to address the Iranian concern while Iranian President's statements enhance the rationale for implementing the forceful scenario.
The *Journal*'s Editorial Board has been closely monitoring the developments concerning Iran and North Korea as we publish our articles on the subject in almost every issue. The issue you are reading now is no exception. D. Friedman analyzed the recent events of concern for these countries' nuclear programmes in her article "A Pause as a Diplomacy Technique".

The article by S. Kondratov "Some Words on Nuclear Myths, Nuclear Weapons and the Closed Nuclear Fuel Cycle" discusses, based on the most recent findings of foreign nuclear non-proliferation research, a variety of analytical approaches to problems of current relevance for Ukraine, which concern creating nuclear fuel cycle elements in our country and periodically fall the victim of political speculations.

G. Gdanska devoted her article to a review of recent events related to the Global Partnership against the Spread of Weapons and Materials of Mass Destruction – an initiative intended to strengthen the nuclear non-proliferation regime.

The sad Chernobyl Disaster anniversary led our April issue to incorporate an article by O. Nasvit, dwelling on quite a controversial issue of radiation risk compensation mechanisms applied in Ukraine. The author maintains that "a State with an eye on future nuclear industry development should not tread the path of maintaining and multiplying reliefs and compensations for radiation risks. It only nourishes misapprehension of radiation risks within the society and will become a major setback to nuclear industry development as civil society institutions are further enhanced in Ukraine."
The Editorial Board will cordially welcome other thoughts on the problems of nuclear non-proliferation, Chernobyl legislation, and international cooperation in the non-proliferation of weapons of mass destruction, raised by the contributors to this issue of our periodical.

We are open for cooperation with you, our Reader.

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Hurdle Race on the Spot. A Year After

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1. Trends and Modifications in Chernobyl Legislation

Over 20 years have passed since the Chernobyl Accident, but the ongoing assessment of its consequences for Ukrainian public and how they relate to the radiation factor continues to raise controversies among experts and highly emotional sentiments within the society. How susceptible Ukrainian society is to the Chernobyl issue is reflected in the Law of Ukraine *On Fundamentals of Ukrainian National Security* [1] where Article 7 "Threats to Ukrainian National Interests and Security" lists the outstanding adverse social and economic effects of the Chernobyl Disaster among major real and potential threats to Ukrainian national security.

The April 2006 issue of the *Security and Non-Proliferation Journal* published my article *Hurdle Race on the Spot. Notes on Efficiency of Chernobyl Legislation* [2]. The bottom-line of that article was that the Chernobyl-related law had not and could not have become an effective modality in addressing the Chernobyl Disaster aftermath because, despite its highly humanistic implications, it:

- is inconsistent and contains significant internal controversies;
- directed at preserving the status quo and does not contemplate internal mechanisms for adaptation of contaminated territories to changes in the radiation situation;
- prioritizes protectionist measures for the public rather than stimulating activity on the part of the people themselves to reduce the dose load, thereby breeding social passivity and paternalistic moods among those inhabiting contaminated areas.

In addition, it must be noted that:

- the amount of reliefs and compensations stipulated by it is ungrounded from the radiation protection perspective;
- the total cost required to implement all of its provisions is out of proportion with Ukraine's economical capacity;
- its provision on compensations for exceeding the basic exposure lose limit does not comply with the nuclear legislation of Ukraine, being in violation of the principle of social justice.

The article maintained that the author was yet to see a way out of the predicament, but all potential paths towards it would require a manifestation of political will to straighten out the Chernobyl law by the parliament, Cabinet of Ministers, and President of Ukraine.

Now a year has passed. What has it been like? Have we made any progress in terms of reaching a common understanding on ways to overcome the Chernobyl Disaster consequences among experts, branches of power and the society in general?

The year past was a special one – marking 20 years since the Chernobyl Accident, the world's worst nuclear accident of disastrous repercussions. Many an expert expressed concern that once the 20th anniversary commemoration was over, the Chernobyl issue would sink into oblivion. It might have been the case, but the issue had implications beyond strictly Chernobyl-specific ones, such as those of concern for the whole Ukrainian nuclear industry. Without a full awareness of what has been (and still is!) going wrong in Chernobyl-related matters, it is impossible to reach

an understanding necessary today of how we ought to proceed both with the Chernobyl-related matters and nuclear matters in general.

The year was also special in that respect that the National Report *Twenty Years after Chernobyl Accident. Future Outlook* [3] first questioned the efficiency of Chernobyl legislation; and not only in terms of contaminated area zoning, but also as regards reasonability of the benefits and allowances to those affected. (The latter concern is aggravated by the former.) It is noteworthy that the Verkhovna Rada entities responsible for handling the subject had opposed to the appearance of that Report, yet it was ultimately released, which gives hope of a slow but sure resolution of the Chernobyl law problems.

Remarkable indeed though hardly noticed by the public was last year's decision by the National Commission for Radiation Protection of Ukrainian Public (NCRPUP) on a transition to strictly dose-related criteria of area zoning for areas contaminated by radionuclides as a result of the Chernobyl Accident. You may remember that, according to the Law of Ukraine *On the Legal Regime in Territories Affected by Radioactive Contamination due to the Chernobyl Disaster* [4] (Ст.2) and the Law of Ukraine *On the Status of and Social Security for Individuals Affected by the Chernobyl Disaster* [5] (Art.2), radionuclide-contaminated areas are zoned against two criteria: density of radionuclide contamination of territories and exposure dose of those inhabiting the them. (Inconsistency of applying radionuclide contamination density at this stage as a criterion for zoning of areas contaminated by radionuclides as a result of the Chernobyl NPP is demonstrated in [6].) The laws mentioned above also establish that the criteria against which contaminated areas are categorized shall be set by NCRPUP. A totally imperative statement, but not supported by any implementation mechanism. Thus NCRPUP completed its historical mission, made the first step toward harmonization of the Chernobyl law, and passed the ball to administrative authorities and People's Deputies.

Difficult as it were, the endevour of overcoming the Chernobyl Accident consequences is sometimes further complicated by lack of professionalism on the part of our authorities and here I am not even sure as to who is the first to blame. Unfortunately, the past year presented another example thereof.

On 13 December 2005, Verkhovna Rada Resolution No. 3184 *On Reviewing Draft Laws Amending the Law of Ukraine On the Status of and Social Security for Individuals Affected by the Chernobyl Disaster* took as a basis draft laws to amend Law [5], submitted by People's Deputies G. Rudenko, I. Zayets, V. Boyko, A. Rakhanskiy, Y. Solomatin, M. Shershun, A. Griazev (reg. No. 6530) and People's Deputy O.Ginsburg (reg. No. 7121-1), and instructed the Verkhovna Rada Committee for Environmental Policy, Environmental Management and Mitigation of the Chernobyl Accident Consequences to combine draft laws No. 6530 and No. 7121-1 and, having incorporated suggestions by those entitled to legislative initiative, submit the resulting draft for Verkhovna Rada review preparatory to the second reading.

In general terms, the above draft laws: a) eliminated inconsistencies between the titles of State and local authorities mentioned in the text of Law [5] and those currently in effect; b) specified the list of benefits/reliefs for lodging, utilities and electric communications costs for citizens referred to Category 1*, and enlarged the circle of persons eligible for benefits by expanding the definition of a "family member"; в) specified benefits applicable to labour record and pension allowance calculations for those affected by the Chernobyl Disaster and related the amount of minimum pensions for affected citizens referred to Category 1 to the amount of subsistence allowance.

* Category 1 includes invalids from among ChNPP accident liquidators and those affected by the ChNPP accident with proven causation of invalidity by the ChNPP accident, those suffering from radiation syndrome. To date, the number of such citizens in Ukraine is over 105 thousand persons.

In addition, draft Law No. 6530 contemplated complementing the Law with a new Article 71 "Particularity of Modifications to the Norms of this Law" to read: "The validity of Articles of this Law or their parts may not be suspended by laws other than those amending this Law."

It must be noted that during 1999–2002 State budget expenditures to fund Chernobyl programmes amounted to 20–25% of the requirement according to the law then in force, vs. 10-11% in 2003. Spending on those programmes' implementation was restrained on an annual basis by laws on the State Budget of Ukraine invalidating Law articles (or their parts) [5].

It is clear that should the Law [5] have been complemented with the proposed Article 71, the amount of State Budget expenditures necessary to comply with all of its requirements could have grown by 10 times and amounted to UAH 18–20 billion. Even abstracting from considerations of reasonability of such expenses and adequacy of Chernobyl law norms, we assert that such expenditures to comply with the Law [5] would have ruined the State's budget and economy, and approval of draft Law No. 6530 would thus have compromised national interests and posed a threat to Ukrainian national security.

The National Security Institute under the National Security and Defence Council (NSDC) sent a letter to NSDC Secretary A. Kinakh, outlining their view on the situation and recommending working with Deputies so as to prevent the Law [5] from incorporating Article 71 through its removal from the proposed draft law at the second reading.

It is noteworthy that draft law No. 6530 had been agreed by relevant ministries, each within its scope of competence, in advance of the first reading. The concern of national security under threat must have been out of their scope of competence.

Therefore, this draft law was approved by the Verkhovna Rada at the second reading 16 March 2006.

6 April 2006 Ukrainian President returns (with his suggestions) the Law of Ukraine *On Amending* the Law of Ukraine *On the Status of and Social Security for Individuals Affected by the Chernobyl Disaster*, approved 16 March 2006, to the Verkhovna Rada for reconsideration.

In October 2006, Ukrainian parliament successfully overrides the Presidential veto and Article 71 is incorporated in the Law [5]. Thus our parliament has forbidden itself to invalidate any Article of the Law [5] or their parts by laws other than special laws to modify this Law. Did a disaster follow as we predicted? No, it didn't, a different thing happened. Just two weeks later our parliament adopted a resolution approving the conclusions and suggestions as to the draft Law on the State Budget of Ukraine for 2007 that included an article (ironically, the final version thereof being Article 71 just as well) invalidating fully or partially 12 Articles of the Law [5] relative to reliefs and compensations for persons adversely affected by the Chernobyl Disaster. Thus in a matter of two weeks our parliament passes two laws that contradict each other absolutely. Isn't such a legislative performance itself a threat to national security?

As we study the problems of overcoming the Chernobyl Accident aftermath we come to believe that the current severity of those problems ensues not so much from ionizing radiation effects proper, but rather from the accident mitigation activity (or inactivity) on the part of the authorities; the common attitude towards radiation safety and radiation protection issues; the extent to which radiation hazards are realized by the public, specifically in terms of their misapprehension nurtured by the authorities – characteristic of those times when the accident happened but, unfortunately, waiting to be overcome until present.

As we study the experience of leading international organizations and countries worldwide in ensuring nuclear and radiation safety and radiation protection we are helped to understand where we have failed and where we should refer to for potential solutions and improvement of the situation.

2. Analysis of international recommendations and their practical implementation under the national law of countries possessing nuclear industries, as regards reliefs and compensations for personnel and the public

The basis for existing radiation safety and radiation protection system as set out in the IAEA international safety norms [6] is provided by International Commission on Radiological Protection (ICRP) Recommendations of 1990, presented in ICRP Publication 60 [7]. This publication updated, enhanced and supplemented the earlier ICRP Recommendations of 1977 as presented in ICRP Publication 26 [8], but their ideology incurred no major changes. For the purpose of this study it is important to identify what radiation protection ideology was recommended as of the date of the Chernobyl Accident and if the decisions made right after the Accident and throughout, even up until present, have been consistent with ICRP recommendations and IAEA safety norms in force as of the date of that decision-making. It is also important to understand how the results of recent research on biological effects of ionizing radiation and its impact on human health have been reflected in radiation safety and radiation protection regulations.

2.1. Role of leading international organizations in the international radiation safety system formation and maintenance at an appropriate scientific level

There is a well-coordinated and internationally acknowledged system of organisations around the world, dealing with the subject of radiation safety and radiation protection. This yields fully concerted approaches to protection against ionizing radiation worldwide [9]. The hubs of this system are the United Nations Scientific Committee on the Effects of Atomic Radiation, International Commission on Radiological Protection, and International Atomic Energy Agency.

United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) routinely overviews existing natural and man-caused radiation sources in human environment responsible for human exposure, exposure doses and associated hazards due to those sources. The results obtained are reported to the UN General Assembly. The most recent report entitled *Sources and Effects of Ionizing Radiation* was submitted in 2000 [10; 11], the preceding one in 1993. The next report on the subject is expected to be finalized shortly.

The International Commission on Radiological Protection, a non-governmental organization founded in 1928, regularly issues recommendations on protection against the effects of ionizing radiation. The ICRP's authority ensues from the scientific reputation of its members and high quality of its recommendations. ICRP assessments of radiation effects and their probabilities are based on analyzing international publications in this field and their reviews by such special agencies as UNSCEAR. The Board on Radiation Effects Research of the U.S. National Academy of Sciences, which also publishes its reports on a regular basis, is another reputable source of assessments of radiation effects and their probabilities for ICRP. In 2006 it prepared and published a report entitled *Health Risks from Exposure to Low Levels of Ionizing Radiation* [12], being a most complete and fundamental study of low-level radiation effects. This report is also known under the acronym BEIR VII (2006). The report includes the most recent risk assessments for cancer development and other effects of low-level exposure. It contains a number of very important conclusions [13]. First, its comprehensive overview of biological and biophysical data corroborates the linear non-threshold risk model for the low-level range (0 through 100 mSv). Second, while the risk assessments for solid cancers and leukaemia given in the preceding report (1990) were generally confirmed, yet availability of new and broader data raised confidence in those assessments. Third, some additional research is needed to establish the

potential of low-level radiation to cause cardiovascular diseases now that such diseases due to high-level exposure are observable today.

The BEIR VII (2006) findings were reflected in the new version of ICRP Recommendations approved in March 2007.

Seeking to cover the whole variety of ionizing radiation applications and all possible users, ICRP recommendations are worded in very general terms, thus producing texts that a specific user cannot directly refer to as safety norms. These recommendations are an ideological basis for developing international and national radiation safety and radiation protection regulations.

The International Atomic Energy Agency is responsible under its Charter for identification and establishment of safety norms in cooperation with other international organisations as necessary. In that activity IAEA heavily relies on UNSCEAR and ICRP activities with their respective expertise. IAEA Safety Standards are not binding for States parties and enter into force by being incorporated in the national law. However, Safety Standards are mandatory as far as IAEA activities and IAEA-assisted operations are concerned.

Other international organizations, with which IAEA interacts in developing radiation safety and radiological protection documents, include:

- International Commission on Radiation Units and Measurements (ICRU);
- International Labour Organisation (ILO);
- World Health Organization (WHO);
- Food and Agriculture Organization of the United Nations (FAO);
- OECD Nuclear Energy Agency (OECD/NEA);
- Pan American Health Organization (PAHO).

2.2. Main provisions of international recommendations on radiation protection of personnel and the public (effective as of the ChNPP Accident date)

2.2.1. Main radiation protection principles

Key features of the modern radiation protection system were outlined already in Publication 26, issued by ICRP in January 1977 [8]. It is based on three major requirements referred to as radiological protection principles. All of them include social considerations, the first two explicitly and the third one implicitly, and therefore warrant application of evaluation and consideration procedures. Such principles include:

1. Justification: No practice involving exposures to radiation should be adopted unless it produces enough benefit to the exposed individuals or to society to offset the radiation detriment it causes.

2. Optimization of protection: in relation to any particular source within a practice, the magnitude of individual doses, the number of people exposed, and the likelihood of incurring exposures where these are not certain to be received should all be kept as low as reasonably achievable (ALARA), economic and social factors being taken into account.

3. Individual dose limitation: no individual should receive radiation doses higher than the maximum allowable limits recommended by the Commission for respective conditions.

In certain cases, for example, when radioactive substances are released into the environment, an intervention may be needed to reduce human exposure. Under such circumstances ICRP recommends radiological protection system interventions based on another two principles:

1. Justification of intervention – the proposed intervention should do more good than harm, i.e. the reduction in detriment resulting from the reduction in dose should be sufficient to justify the harm and the costs, including social costs, of the intervention.

2. Optimization of intervention – the form, scale, and duration of the intervention should be optimized so that the net benefit of the reduction of dose, i.e. the benefit of the reduction in radiation detriment, less the detriment associated with the intervention, should be maximized as reasonably achievable.

2.2.2. Application of the acceptable risk concept in radiation safety

ICRP Publication No. 26 clearly expressed the Commission's position in determining the acceptable risk level consistent with recommended basic dose limits. The document maintains that for the near future a reasonable technique to determine risk acceptability in exposure-related activities would be to compare that estimated risk with the risk from other occupations considered the safest. For most occupations mortality from incidents and diseases is accompanied by a much larger number of less severe consequences. Radiation impact at a level corresponding to the effective dose limit may cause very few injuries and ailments in exposed workers in addition to those malignant diseases that can be induced by ionizing radiation. Therefore, in its effective dose limit estimates the Commission assumes that the **rated frequency of malignant diseases from occupational exposure in any event must not exceed the rate of occupational mortality in safe industries** [8].

The last point is extremely important. Setting occupational exposure dose limits at a level, where the death rate for occupational diseases is up to the level observed of the most hazardous industries was a prominent step to creating a safe working environment whenever ionizing radiation is involved, but at the same time it gave rise to questioning the grounds for occupational reliefs provided to workers dealing with IRSs. The Commission indicated that unless the dose exceeded the permissible limit, ***in terms of radiation hazards, no additional measures to be provided for the workers would be required of the administration. In particular, there is no requirement to lessen daily working hours and extend vacation times*** [8].

ICRP explained that the permissible effective dose limit (the main dose limit) should not be perceived as a strict boundary between safety and hazard. Reaching or even exceeding that limit is an essential sign of insufficient monitoring rather than a requirement of immediate protection response.

ICRP recommended that the industry introduce medical monitoring of exposed workers to be conducted based on general terms of occupational medicine. Its purposes must include:

- Health status examinations;
- Assistance in making sure the health status is consistent with the working conditions;
- Obtaining input data useful in case of emergency exposure or occupational disease.

2.3. Practical implementation of international recommendations regarding reliefs and compensations for personnel and the public

2.3.1. Reliefs and compensations for personnel

Since the optimization principle was declared one of the main principles of radiation protection, it encouraged leading countries of the world to abolish the previously established reliefs and compensations for working with ionizing radiation. Thus no reliefs have been preserved until now in Sweden and Norway. In Japan, U.S., United Kingdom and Australia workers involved in the nuclear industry and activities involving ionizing radiation receive a higher (by 3–5%) salary; however, it is not risk compensations to be credited, but rather market mechanisms active at the labour market – employers seek to involve best specialists in responsible work. No reduced working hours or extended vacation times are provided in advanced countries for exposed workers, and though in Japan, for instance, nuclear facility personnel may retire 3 years earlier, compliance with that condition is optional for the employer.

United Kingdom has the so called Environmental Conditions Allowance being less than 10%, but it is paid to personnel, for instance, if they have to work in an airtight outfit with breathing air fed through hoses, i.e. this allowance does not directly follow from exposure conditions.

If personnel have received emergency exposure and developed an occupational disease, radiogenic cancer being an example, they are eligible for compensations under special compensation arrangements. Such arrangements– both governmental and nongovernmental (relating to employer associations or nuclear and radiation trade unions) – are in place in all major nuclear countries. In United Kingdom, for example, in order to obtain nongovernmental compensations in case of disease, it must be proved that the cancer probability as a result of the worker's occupational exposure is at least 20%. Compensations are provided to former or current employees of enterprises parties to the association that has established the compensation arrangements.

Compensation based on a mere fact of exposure is paid nowhere in the world except on the post-Soviet terrain.

2.3.2. Reliefs and compensations for the public

Following the ChNPP Accident, some countries of Western and Northern Europe introduced restraints on the trade in certain locally produced foods. As a result, producers incurred losses, which were compensated by the countries' governments.

The United Kingdom restrained the trade in mutton with a content of radioactive caesium over 1000 Bq/kg. That ban affected 9000 farms around the country. Even at this point the ban is applicable to 375 farms: 355 in Wales, 11 in Scotland and 9 in Cambria [14], and farmers continue to obtain compensations for their costs of measuring radiation levels in animals, their marking and related transportation. The farms covered by such restraints maintain today up to 200 thousand sheep.

Sweden and Finland restrained the trade in venison with a content of radioactive caesium over 1500 Bq/kg. In Sweden alone, over 100 thousand reindeer carcasses were discarded during 1986–1987, and another 100 thousand in 1988 through 1994. This country has recently been discarding about 1000 carcasses a year. Reindeer herders, fishermen and hunters have been and keep on receiving governmental compensations [15].

Western Germany, Austria and Italy introduced preventive measures regarding foods, including restrained use of milk and dairy foods. In 1989 alone the value of compensations to dairy and vegetable producing farmers in Germany amounted to €159 million, and the total to date exceeds €250 million [16].

Anywhere in European countries where compensations for certain contaminated foods were contemplated, such compensations were provided for producers while no country except the post-Soviet terrain contemplated compensations for consumers.

3. Ukrainian experience: onward, on the path of reliefs and compensations mandated by the immortal USSR Ministry of Medium Machine-Building

As we seek an answer to the question whether we have put away the stereotypes being a major contribution to our Chernobyl situation, let us take a look at some provisions of our fundamental nuclear law– the Law of Ukraine *On the Use of Nuclear Energy and Radiation Safety* [17].

Basic State policy principles regarding the use of nuclear energy and radiation safety under this law include (Article 5):

- Ensured compensation for damage associated with radiation effects, as well as socio-economic compensations for additional risk factors covering nuclear facility personnel, ionizing radiation sources and the public residing or working in areas hosting nuclear facilities and radioactive waste management facilities;
- Implementing measures of socio-economic motivation ["zainteresovanist", see below] of local State and public authorities in areas hosting nuclear facilities and radioactive waste management facilities.

Seems like appropriate words arranged in appropriate order, but a closer look will raise questions. For instance, what damage associated with radiation effects is it talking about? If what they mean here is nuclear damage or damage due to emergency exposure, then it is clear – an emergency is an emergency. If it implies some radiation impact under non-emergency operation, then there is no technique to detect it.

Furthermore, what is meant by additional risk factors for the personnel and, especially, for the public? In the absence of major radiation accidents, electricity production by NPPs belongs to entirely safe industries in terms of occupational risks. Pursuant to Cabinet of Ministers of Ukraine Resolution No. 1423 dated 13 September 2000 [18], all industries and activities are distinguished by the class of occupational risk. This Resolution identifies a total of 67 classes of occupational risks, with the safest industries falling under Class 1 and one most dangerous activity, underground coal-mining, under Class 67. According to this classification, electricity production by NPPs is Class 17, on par with shoe-making and manufacture of fabric and furs. A huge number of industries in our country are way more dangerous in terms of occupational injuries and diseases. As for the public, there are no risks under non-emergency operation to be distinguished from everyday life ones. The public must live and work serenely, free from preoccupation with "additional risk factors", and be sure that the State will take care of their safety in case of emergency. And the State, in its turn, must ensure emergency preparedness and response to accidents and emergencies.

The word "zainteresovanist" [interest, motivation] in Ukrainian suggests a vividly material connotation of "interest" as distinguished from the more general "zatsikavlenist" [interest, curiosity]. In other words, "zainteresovanist" means material "zatsikavlenist", material interest. It is obvious then that the Law envisages additional material benefits for local State and public authorities in areas hosting nuclear facilities and radioactive waste management facilities. And it must be those very facilities to be charged and pay. To pay for what, I might humbly ask? For being feared? Then wouldn't it be a better idea to commit this money to overcoming that fear by entering into partnership relations as is currently the case in advanced countries? Then the Law would need a different wording.

Article 12 of this Law [17] defines socio-economic conditions of living and working in areas hosting uranium ore producing enterprises, nuclear facilities and radioactive waste management facilities. The Article indicates that "the public inhabiting areas hosting uranium producing enterprises, nuclear facilities and radioactive waste management facilities are entitled to socio-economic compensation for risks associated with their activities, particularly to:

- spending a portion of funding invested in the construction of nuclear facilities on construction of community facilities;
- spending a portion of funding referred to the production cost of electricity produced by operating NPPs on local socio-economic development;
- a privileged regime of energy consumption in areas hosting nuclear power plants.

Compensation types, amounts, sources and granting procedures, along with identification of areas covered by socio-economic motivation measures, are established by the Cabinet of Ministers of Ukraine in coordination with local State and public authorities based on a scientific and technical rationale [17].

Again, questions arise as to what constitutes the risk from enterprises' activities, how big it is, how much it costs if need be compensated for. As I was writing this article I screened the IAEA website for documents regulating or at least discussing risk compensation. There is a great deal of documents containing both words, but none was found containing the word combination "risk compensation". Risk compensation appears to be a purely Soviet invention. Around the world it is damage that is compensated, or losses, not risks.

Yet the provisions on the first two types of compensations read very much the European way, the only phrase missing would be "under social packages as agreed by local communities or their representative bodies". As to "privileged regime of energy consumption", such a practice is not encouraged and not applicable in Europe.

The Cabinet of Ministers in Ukraine has to assume the role of a mediator between communities and facility operators, which is drastically different from the role of central authorities in developed democracies where they only define the strategy and establish the rules of the game. It is stakeholders and communities that play a role as they negotiate with each other to develop social packages on their own.

The above questions to the Law of Ukraine *On the Use of Nuclear Energy and Radiation Safety* arose, in fact, in conjunction with the Verkhovna Rada adoption of another law– the Law of Ukraine *On Amending Certain Laws of Ukraine Related to Social Security of the Public Resident in Monitored Areas* [19]. The point is that the provisions of our fundamental nuclear law do admit ambiguous interpretation that can equally be adequate, i.e. consistent with the provisions and spirit of international recommendations, or erroneous. And as one gets to know the Law [19] better, one is led to think that its provisions are misinterpreted rather than interpreted properly. Thus, according to the new Law, the original Law is complemented with new definitions, namely:

- "medical monitoring stands for monitoring of the impact by nuclear facilities and radioactive waste management facilities on the health status of the public residing in monitored areas according to the methodology approved by the Ministry of Health Protection of Ukraine, using representative sampling for specific categories of the public;
- socio-economic risk compensation for the public residing in monitored areas stands for creation and appropriate maintenance of special social infrastructure, providing the public with individual protective gear, regular training in how to use the special social infrastructure and individual protective gear [19].

For one thing, medical monitoring is recommended by ICRP only for facility personnel while listing no such nonsense, I beg your pardon, as monitoring of facility impact on health among the objectives of such monitoring. The monitoring is to be conducted based on generic occupational medicine. (See Section 2.2.2 of this Article.) Under non-emergency operation, the public exposure doses amount to one-digit percentages of those due to natural radiation background. Under such conditions, declared monitoring of facility impact on public health by medical monitoring is, we believe, nothing but monkey business and the medical monitoring itself a waste of money. As to socio-economic risk compensation for the public residing in monitored areas, its measures are part of what is defined in IAEA documents as assurance of emergency preparedness. Maybe it's time we learned to call a spade a spade?

It must be mentioned that the President of Ukraine sent the Verkhovna Rada approved law back with comments twice. His concerns basically included substantial implementation costs and uncertainty of funding sources. Speaking on this Law at the Verkhovna Rada plenary meeting of 5 October 2006, People's Deputy V. Bronnikov informed that the VR Committee on the Fuel and Energy Complex, Nuclear Policy and Nuclear Safety had the text fully agreed by the Ministry of Finance, Ministry of Fuel and Energy and Ministry of Emergencies. He also said: "We have identified the funding source, stating that it is part of production activities of the legal entity operating either the nuclear power plant or radioactive waste management or uranium ore processing facility." After those explanations, 368 Deputies voted the law in the affirmative. It is interesting though, that Mr. Bronnikov's words can nowhere be supported throughout the text of the Law. It only stipulates that Article 5 of this Law ("Basic State policy principles regarding the use of nuclear energy and radiation safety") is complemented, after Paragraph 7, by a new paragraph reading: "establishment of a legal and financial mechanism for socio-economic risk compensation for the public resident in monitored areas." Let us see how Mr. Bronnikov's Verkhovna Rada meeting room statements on facility operators having to fund the implementation of this Law will be reflected in the documents. I guess operators have all legitimate grounds for contesting the provision on medical monitoring at their expense as such that is inconsistent with international recommendations and practices and contravenes the radiation protection scientific basis as well as international recommendations and domestic regulations on optimization of nuclear energy activities.

The practice of infusing radiation phobias that this Law, I believe, contributes to, with its provisions on risk compensation for the personnel and the public as well as implementation of medical monitoring of facility impact on public health, is quite common for our country, unfortunately. For example, the 2005 National Report on the Status of Industrial and Natural Safety in Ukraine, Article 3.1 "Radiation Hazard Analysis and Related Response Systems" reads, "Radiation impact remains one of the most hazardous man-caused factors that adversely affect the public living conditions and the environment." And considering that the main source of radiation impact for the absolute majority of Ukrainian public is natural radiation background, nowhere to be sheltered from, it becomes clear that we all are doomed.

It is my conviction that a State with an eye on future nuclear industry development should not tread the path of maintaining and multiplying reliefs and compensations for radiation risks. It only nurtures misapprehension of radiation risks within the society and will become a major setback to nuclear industry development as civil society institutions are further enhanced in Ukraine.

3. What path do advanced countries tread?

Reliefs and compensations for the personnel of nuclear and radiation facilities were discussed in Section 2.3.1, and reliefs and compensations for the public in case of emergencies – in Section 2.3.2. Let us see how nuclear and radiation facilities build out their relations with the public in the absence of emergencies.

Major challenges here concern siting for radioactive waste (RAW) storages and new NPPs. The Nuclear Energy Agency Report (NEA OECD) for 2005 [20], published in 2006, indicates that modern and prospective approaches to RAW storage siting are those based not on compensation to communities (let alone individuals!), but rather on a broader socio-economic and cultural development of local communities with establishment of science centres, museums, etc. This is also true for NPP siting.

Of recent, the most prominent document discussing the relations between nuclear and radiation facilities, RAW storages in particular, with communities, is the United Kingdom Committee on Radioactive Waste Management (CoRWM) Report [21], issued in July 2006. CoRWM's Report was entitled *Managing Our Radioactive Waste Safely. CoRWM's Recommendations to Government* and was developed for three years. The study applied an innovative approach based on close cooperation with stakeholders and citizens, involving expertise and ethical considerations.

CoRWM experts studied the experience of world's leading countries and learned that most countries maintain programmes for RAW disposal siting including various forms of involving the public (communities). These programmes vary in successfulness, Sweden and Finland being the most successful in the geological disposal siting for civil RAW. Experts believe that both an achievable and acceptable way forward is impossible without involving local communities.

While developing the recommendations, various aspects of interacting with communities were considered, including "whether local communities should have a veto or be encouraged to volunteer, and whether they should be offered incentives" [21].

CoRWM has not adopted the approach of incentives to volunteer and compensation for taking on burdensome responsibility on behalf of the society. The recommended approach is based on enhancement of the well-being of communities willing to participate in the management of radioactive waste. This well-being enhancement may be achieved in various ways, but in any event it requires development of an open, candid and equitable dialogue between the operator and local communities.

Recommendations justified based on ethical principles do represent one of the strongest point. Experts maintain that ethics must be an integral part of addressing the "what-to-do" issue, and the values of equity (fairness) and development sustainability have played a vital role in the assessment of options.

CoRWM's recommendations cover RAW disposal facilities, but the Committee states that the approach they have developed is fully applicable to development of recommendations on construction siting for new NPPs.

As for ethical considerations, a group of Ukrainian experts recently learned an interesting lesson. While on a visit to the Swedish nuclear power plant OKG we enquired about the height of ventilation stacks and were told a peculiar story in response. As Unit 3 was erected two options were under consideration for its structure: that with a high stack and that with a low one. The decision was ultimately made based on ethical grounds. Since it was local communities that would primarily benefit from the unit, it was decided unethical that radionuclides wander to longer distances where communities had no such benefit. Thus a decision was approved to erect a low stack (110m high).

I think it is high time out nuclear community escaped from the grasp of the USSR MMB stereotypes and moved towards applying ethical dimensions. It will be of benefit for both the nuclear community and the community overall and, what's most important, it will bring us sure prospects of public support for nuclear industry development. Of course, if an appropriate level is secured for our technology.

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Glimpse of Nuclear Myths, Nuclear Weapons and a Closed Nuclear Fuel Cycle

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1. Introduction or what is a problem?

In Ukraine a lot of declarations have been made, in particular, by the high executives on necessity to create the indigenous nuclear fuel cycle as one of the conditions for our state to achieve real energy security. Such a stance, undoubtedly, is entitled to exist and is not in conflict with the NPT, but its objective analysis requires taking into consideration all aspects of the problem. Unfortunately, the supporters of such option for Ukrainian nuclear power industry development have considered it, mainly, from the perspective of reducing Ukraine's dependence on Russian Federation, which supplies nuclear fuel to the Ukrainian NPPs and accepts their spent nuclear fuel for reprocessing and storage. However, the problems connected with Ukraine's involvement in maintaining the nuclear weapons nonproliferation regime and in combating nuclear and radiological terrorism either remain at the periphery of discussions or escape attention at all.

The statements of some Ukrainian politicians sometimes have not taken into consideration the wide international context of the problem, ignored (hopefully, unintentionally) the initiatives and proposals coming from influential international organizations and structures (G8, IAEA, NSG, etc.) and from individual leading countries (first of all, "strategic partners" of Ukraine).

International community's concerns arisen from announcement of such statements to a considerable degree are connected with the fact that according to leading experts in nuclear nonproliferation realm a decision of a nation to acquire uranium enrichment and spent fuel reprocessing technologies is assigned to the category of indicators that make signals about concealed plans of the nation to produce nuclear weapons.

In case of Ukraine suspicions can be enhanced with the fact that often the statements on expediency to acquire an indigenous closed nuclear fuel cycle (including uranium enrichment and spent fuel reprocessing technologies) come from the representatives of those political forces which as far as at the beginning of Ukraine's independence considered renunciation of nuclear weapons as the wrong decision[1]. Besides, it is a peculiarity of our state, suffering from the permanent political crisis for several recent years that the statements on adherence to this idea have come recently from the politicians occupying the diametrically opposed ends of the Ukrainian political spectrum.

It is consideration of a likely response of the international community to possible Ukraine's attempts to create a closed nuclear fuel cycle (CNFC) that this paper is devoted to. When writing the paper the materials of the special issue of "The Nonproliferation Review", devoted to the topic "Nuclear Weapons Proliferation: 2016, were used. This journal is issued by the Center for Nonproliferation Studies (CNS) at the Monterey Institute of International Studies (U.S.). The CNS is the world's leading nongovernmental organization working in the field of WMD nonproliferation.

2. Ukraine's right to develop a peaceful nuclear power program

According to Article IV of the NPT all the Parties to the Treaty have right "to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with articles I and II of this Treaty". Being governed by the provisions of this article and using available natural resources and personnel resources Ukraine has right to create a CNFC on its territory and it would not be a violation of any international law, Ukraine is a party

[1] Yaderna zbroya: diysnist' i mify// Vechirniy Kyiv. – 1994. January 25. – www.kostenko.unp-ua.org

to or participant of. But, in reality, the situation would be not so simple in connection with the problems of nuclear weapons nonproliferation regime underlined by the NPT.

3. A glimpse of theory

According to P.R. Lavoy[2], "*two theoretical perspectives compete to explain the causes of nuclear proliferation",* namely*, realist (*or *neo-realist)* and *idealist.* Not going insight their provisions one could say that from the first perspective "*states pursue nuclear weapons to offset international security threats*"[3], whereas the adherents of the second theoretical approach, e.g. Jacques Hymans, believe, that "*the idealist paradigm does a better job of explaining nuclear proliferation"* focusing on *"ideas produced by national, cultural, or individual attributes"*[4] of the processes and simulating worldview, motivations and styles of decision making by the leaders of countries. But either of the above mentioned approaches have both some advantages and constraints.

P.R. Lavoy, one of the leading U.S. experts in this field, proposed the approach relying upon "nuclear myth making" model. He believes that this approach is more flexible and fruitful comparing with either of the above mentioned perspectives alone. Nevertheless, in this paper in some cases references to the realist and idealist approaches are made when they allow to credibly explain from author's point of view the causes and trends in nuclear proliferation.

For example, adherence to the "nuclear" choice is typical for the nationalist movements and parties. The explanations of this fact by Smith College Professor Jacques E.C. Hymans, one of representatives of the *idealist* perspective on the nuclear proliferation, are sufficiently convincing. He believes that the idealistic approach to the analysis at the individual level of motives and worldviews of state leaders is becoming more and more fruitful in international studies. "The individual-level idealist approach to the proliferation puzzle begins with the observation of the tremendously uncertain consequences of going nuclear. In light of these, the will to make that choice cannot arise out of standard cost-benefit calculation, but instead must result from a process of emotional decisionmaking. The combination of fear and pride, both grounded in a deeply held "oppositional nationalist" conception of the nation's identity, makes for a particularly explosive psychological cocktail. Driven by fear and pride oppositional nationalists develop a desire for nuclear weapons that goes beyond calculation to self-expression. Thus, in spite of the tremendous complexity of the nuclear choice, leaders who decide for the bomb tend not to back into it. For them, the choice of for nuclear weapons is neither a close call nor a possible resort but an absolute necessity."[5]

As of the nuclear mythmaking process, it, in Lavoy's opinion, explains better more general processes, at the state level. According to this approach, "a state is likely to make the pursuit of nuclear weapons part of its national security strategy when national elites (nuclear mythmakers), who want their government to adopt this strategy, (1) emphasize their country's insecurity or its poor international standing; (2) portray this strategy as the best corrective for these problems; (3) articulate the political, economic, and technical feasibility of acquiring nuclear weapons; (4) successfully associate these beliefs and arguments (nuclear myths) with existing cultural norms and political priorities; and finally (5) convince senior decisionmakers to accept and act on these views."[6]

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[2] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454

[3] Ibid

[4] Ibid

[5] Jacques E.C. Hymans, *Insights from the Past: Theory, Intelligence, and Policy,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 455-466

[6] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454

Relying upon these provisions Lavoy has developed a system of warning signs or indicators of country's intent to proceed on a pathway on nuclear weapons development. This system includes three general categories:

1. Indicators of nuclear myths and mythmakers
2. Indicators of changed security circumstances
3. Indicators of nuclear program dynamics.

4. Indicators of Nuclear Myths and Mythmakers

Public statements

In this category Lavoy specifies as a first indicator the public statements by governmental leaders, official spokepersons, and other political, military, and scientific officials addressing nuclear energy and nuclear weapons. Lavoy explains the importance of this indicator by several examples.

The case of Pakistan

"In 1965, when Zulfiqar Ali Bhutto was foreign minister in President's Ayub Khan's cabinet, he became the first Pakistani official openly to call for nuclear weapons, proclaiming: "If India developed an atomic bomb, we too will develop one even if we have to eat grass or leaves or to remain hungry, because there is no conventional alternative to the atomic bomb."[7] Lavoy emphasizes that despite Khan rejected Bhutto's demand for nuclear weapons to counter India, choosing instead to beef up Pakistan's conventional defenses and strengthen its security ties to the United States, Bhutto's public statements in the 1960s provided a clear indication (sign) of the political line he would follow in early 1972 upon becoming head of the Pakistani state.

The case of Egypt

Another Lavoy's example addresses the statements on nuclear power industry development in Egypt. President of Egypt Gamal Abd al-Nasser publicly proclaimed his interest in acquiring nuclear weapons "at the very time he was instructing the Egyptian Atomic Energy Establishment to initiate preparation for a bomb program. Much more recently, Gamal Mubarak, son of Egyptian President Hosni Mubarak, proposed in an important political speech that Egypt should pursue a nuclear energy program.[8]" Although in his statement he referred to use of nuclear technologies for generating electricity, such a statement can be recognized as a warning signal that the political management of the country is considering carefully the possibility of launching a nuclear program that might provide one day in the future a weapons option. "Or it could be an indicator that, like Bhutto, Gamal Mubarak might become a proponent of nuclear weapons if he were to succeed his father as president."[9]

The case of Ukraine

Since the time Ukraine gained independence, a large number of loud declarations have been made by Ukrainian politicians addressing both nuclear weapons and nuclear power development. This is not surprising, because few other countries in the world have had such a dramatic "relationship with the atom" as Ukraine. On the one hand – the Chernobyl accident, the largest man-made disaster in the history; on the other - Ukraine's renunciation of the world's third biggest nuclear weapons arsenal.

Apparent errors in the foreign and internal policies of Ukraine and a long-drawn process of nation's self-identification have led to the political battles and intensive, even if sometimes chaotic, searches of new approaches to the country's development and enhancing its standing in

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[7] Zulfiqar Ali Bhutto, *Awakening the People (*Rawalpindi: Pakistan Publications, 1970), p.21

[8] Michael Slackman and Mona El-Naggar, "Mubarak's Son Proposes Nuclear Program," *New York Times, Sept.20, 2006, p.14*

[9] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454

the international arena. Against this background, nuclear issues have become quite attractive for a considerable part of Ukrainian politicians and, it is interesting, coming from very different parts of the political spectrum.

For example, in 1994 a well-known Ukrainian politician Yuriy Kostenko (then one of the leaders of the *Rukh)* in his interview to the popular Kyiv daily[10] stated that "*the obstacle for nuclear disarmament is not any country, but the real fact that it is possible to ensure national security by nothing else except nuclear weapons. Neither in Yugoslavia, nor in Georgia wars would have taken place, had they had nuclear weapons in their territories. Nuclear weapons are the most efficient tool to deter an aggressor, because they force politicians to make balanced decisions in case problems arise."*

And when in 2006 (12 years after that interview) the *Guidelines for Propagandists Training* (developed by the Central Campaign Headquarters of the Ukrainian People Block of Kostenko and Plyusch[11] for election to the Ukrainian Parliament) stated that it was necessary to "*introduce modern safe technologies to produce* ***own*** *nuclear fuel*", such a position could not be conceived of otherwise than in combination with the earlier Kostenko's interview and other his statements.

Ukraine is unique among other countries in that nostalgic sentiment about the lost status of a nuclear weapons state has been also voiced by the other, less typical sources on the other end of the political spectrum.

In November 2003, just after the Ukrainian – Russian crisis around Tuzla, an important statement was made by Yuriy Ekhanurov (at that time, the People's Deputy, member of the oppositional faction "*Nasha Ukraina*" in the Ukrainian Parliament) on the possible reconsideration of the non-nuclear status of Ukraine. In his interview to the weekly "*Stolichnye novosti*"[12], he explained the reasons for that statement saying that "*for any country the problem of the territorial integrity is one of the highest priorities. We have problems with our neighbors. But it has proven to be solely our problems, and nobody else worries about them, while international guarantees have so far failed to work. To gain nuclear capabilities requires a very serious decision of international importance. Common people have asked me the question, whether, in the end, we could produce such a weapon that will help us to be left alone? We would have no problem with the technology, and we have a sufficient number of wise heads in Ukraine".*

According to Bruno Tetrais[13], "*Ukraine remains proud of its nuclear complex.*" He quotes Ekhanurov's words (already as Prime Minister) in March 2006: "*God gave us uranium*", and believes that this phrase was echoed by Iranian President Mahmoud Ahmadinejad's motto that nuclear technology is a "*gift from God*."

In particular, the representative of political opponents of nationalists, Raisa Bogatyryova, a leader of the Party of Regions'[14] faction in the Ukrainian Parliament, a driving force in "Anti-Crisis Coalition" which formed the current Ukrainian Government, recently wrote in her keynote article[15] that "*if Ukraine had not abandoned nuclear weapons in 1993 we would have already been an associated member of the G7 without humiliating stories around EU and NATO*

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[10] www.kostenko.unp-ua.org/articles/ Yaderna zbroya: diysnist' i mify. "Vechirniy Kyiv" (Nuclear Weapons: Reality and Myths. "Evening Kyiv) 25 January 1994.
[11] Former Speaker of the Ukrainian Parliament (Verkhovna Rada)
[12] №38 (283), October 28 – November 3, 2003
[13] Nuclear Proliferation in Europe: Could It Still Happen?, *Bruno Tetrais,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 569 - 579
[14] The vast majority of the party supporters live in Eastern and South-Eastern Ukraine which historically have had closed links with Russia. The party's influence also is underpinned by the resources of the financial and industrial groups of the Donbass region.
[15] www.zn.kiev.uz, *Raisa Bogatyryova*, National Pragmatism, Or Essay on Ukraine's Future, "Zerkalo Nedeli", №3 (632), 2007

membership. But the problem is that this no one needs that and, first of all, not our pseudo-patriots."

About the negative consequences of Ukraine's renunciation of nuclear weapons Raisa Bogatyryova, a leader of the Party of Regions' faction in the Ukrainian Parliament, a driving force in "Anti-Crisis Coalition" which formed the current Ukrainian Government, recently wrote in her keynote article: "*if Ukraine had not abandoned nuclear weapons in 1993 we would have already been an associated member of the G7 without humiliating stories around EU and NATO membership. But the problem is that this no one needs that and, first of all, not our pseudo-patriots."*[16]

And, finally, at the left end of the Ukrainian political spectrum statements condemning Ukraine's decision on nuclear weapons renunciation have also been voiced from time to time. In particular, the leader of Ukrainian communists Petro Simonenko in one of his articles written for an Internet publication[17] said that "*after the malevolent forfeit of nuclear weapons by the Ukrainian power due its light-minded stupidity the West stopped taking into account Ukraine at all."*

To complete a review of the situation in Ukraine with regard to nuclear weapons, it should be noted that except, perhaps, the right-wing nationalistic parties, the vast majority of statements on the possibility of acquiring nuclear status have been made by politicians on an individual basis, i.e. they did not reflect parties' programs.

Against the background of considerable interest in nuclear weapons revealed by the representatives of differently oriented parties, special attention of foreign analysts and experts can be attracted to the repeated although rather inconsistent statements of Ukrainian politicians about necessity to develop indigenous capabilities to produce own nuclear fuel (create a closed or complete nuclear fuel cycle).

Sometimes, it seems that some Ukrainian politicians (or, rather their advisors) have not seen any principal difference between development of nuclear power industry and, for example, dairy-and-meat industry. It is, unfortunately, true for the top political management of the country as well.

If one tracks the stance of the Ukrainian Government during the last several years, one could see that in February 2005 after the victory of the *orange revolution,* when then-Prime Minister Yulia Timoshenko presented the Governmental Program *"Towards People"* one of the item of this document contained a reasonably balanced provision on the implementation of the *"program aiming at creation of elements of an indigenous nuclear fuel cycle".* The governmental position seemed to be set, but several months later, on June 17, 2005, in her speech at the "mini-Davos" in Kyiv Timoshenko stated that "*Ukraine has rich deposits of uranium ore and zirconium and is capable of producing nuclear fuel. Bearing in mind that nuclear power industry, if guided by adequate policy, can fully meet demands in electric power, we will indeed make emphasis on development of the nuclear power industry ".* Perhaps, despite certain previous difficulties a few months before the resignation of the Cabinet of Ministers, they felt quite confident and regarded the idea of an indigenous nuclear fuel cycle as a natural step forward, to a more ambitious goal, but, unfortunately, without due consideration of the international context.

After Timoshenko's Cabinet of Ministers resigned, the Government headed by Yuriy Ekhanurov approved the *Energy Strategy of Ukraine for the Period until 2030*[18]*,* in which tasks in the nuclear realm was outlined quite well and which led to the conclusion that if Ukraine did not want to come into collision with, e.g., the members of G8, the enrichment and reprocessing technologies could not be acquired by our country. In this connection the *Strategy* proposed to focus efforts on development of uranium, zirconium, zirconium alloys, fuel assembly (FA)

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[16] Ibid
[17] www.zavtra.ru, April 10, 2001
[18] Approved by the Cabinet of Ministers' order of March 15, 2006 No.145-r

component production and the FA fabrication plant, that is, to what the document called *elements of the nuclear fuel cycle*.

And quite recently, in late January 2007, one of the leaders of the faction of *the Regions Party*[19] involved in the governmental coalition raised again the question of reviewing the non-nuclear status of Ukraine and creation of a complete nuclear fuel cycle in our country.
Thus, one can conclude that this indicator (*public statements)* shows widespread nostalgia about nuclear weapons expressed by a number of Ukrainian politicians of different orientations and the lack of respect in the international arena that Ukrainian leaders sometimes feel, in combination with rather numerous although inconsistent statements about an indigenous complete or closed nuclear fuel cycle, create foundations for further development of the nuclear mythmaking process in Ukraine.

Policy Debates

The second indicator assigned by Lavoy to the category of the indicators of nuclear myths and mythmakers is policy debates carried out at the state level especially with regard to political, economic, and technical feasibility of developing nuclear weapons as well as to advantages of possessing nuclear forces.

The case of India

According to Lavoy[20] "India's liveliest nuclear debate was sparked by China's first nuclear explosive test in October 1964. Even before that event, the Indian nuclear program chief, Homi Bhabha, had established the technical and economic feasibility of building nuclear bombs in India and then lobbied to convince key political elites to approve the development of a limited nuclear deterrent capability." Prime Minister Lal Bahadur Shastri, the reticent politician, initially rejected the bomb option, preferring a diplomatic solution to deal with China. "But Bhabha was so effective in swaying the internal feasibility arguments" that by early 1965 "Shastri had no alternative but to allow Bhabha to design and develop nuclear devices"[21]. This example is interesting since it illustrates how domestic policy debates partially reflected in media can give information about nisi of politics. Lavoy contends that "even when these debates take place in secret chambers of government, the intelligence agencies of the United States and some of its nonproliferation allies often have the means to follow them."[22]

What about Ukraine?

The history of independent Ukraine demonstrates that debates on interrelated nuclear topics, namely, on the consequences of "peaceful atom" utilization (Chernobyl disaster), renunciation of the world's third largest nuclear weapons arsenal and production of own nuclear fuel have remained a constant feature. These debates unfolded at different levels and in various domains of the Ukrainian society – in the Ukrainian media[23], on the web pages of state authorities[24] and political parties (see footnote 1) but were not grounded in a firm decision of national elites, however.

Mythmaker movements

The third indicator in this category presented by Lavoy is mythmaker movements both carrier (their promotion) and physical (e.g., international contacts). For example, in Brazil during its

[19] The Regions Party (*Partiya Regionov)* leading political force in the Anti-crisis Coalition which have formed together with Communist Party and Socialist Party the current Cabinet of Ministers of Ukraine
[20] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454
[21] Ibid
[22] Ibid
[23] Ref., e.g., to www.novasich.org.ua
[24] Ref., e.g., to www.mpe.gov.ua

nuclear weapons campaign in the 1980s, "key scientists involved in civilian nuclear energy application may be recruited to work on a parallel weapons development program. If the movement of these individuals is monitored, their absence from civilian work might indicate that more nefarious activities could be taking place. If active international contacts of nuclear program managers and scientists are observed, it can indicate that sensitive nuclear technologies are being bought, sold, or bartered.

At finally, according to Lavoy, one more sign could warn about a significant change in a country's nuclear status. It is "the promotion of a key nuclear mythmaker to a position of greater influence within the government"[25]. Such examples are typical for the history of the Indian nuclear weapons.

5. Indicators of Changed Security Circumstances

Lavoy contends that at some basic level, "*all nuclear aspirant states seek the bomb to offset a real security predicament"*[26]. But the rise of an acute security threat is a necessary, but not a sufficient condition for a country to start a nuclear weapons program, otherwise, the number of nuclear weapons states would be much greater.

The case of Pakistan

When considering the case of Pakistan Lavoy notes that in 1965 Zulfiqar Ali Bhutto, then-Minister of Foreign Affairs, believed that the threat of Indian aggression perceived through "military buying spree following its 1962 border war with China, coupled with India's acceleration of its nuclear research and development program"[27] "President Ayub Khan, agreed on the seriousness of the Indian military menace, but downplayed the prospect of an Indian nuclear arsenal"[28] and decided that the military alliance with the U.S. and conventional forces modernization would better ameliorate Pakistan's security problems.
Despite Pakistan did not made a decision to go nuclear in 1965, India's efforts in development of conventional arms and its apparent interest in nuclear weapons generated the situation for triggering serious security debates "in which competing myths and mythmakers battled over the desirability, feasibility, and utility of nuclear arms acquisition"[29].
And only after the Bangladesh war in 1971, which Pakistan lost, and India's first nuclear test in May 1974 Bhutto, then-President of Pakistan, made a decision to launch efforts leading to nuclear arms acquisition. The efforts of Pakistan were doubled after the first India's nuclear test in May 1974. The U.S. government tracked these developments of the Pakistani nuclear program but appeared to be powerless to prevent them[30].

Indicators of Changed Security Circumstances for Ukraine

When considering the changes in security conditions of Ukraine since it gained independence in 1991, the crisis around the *Kosa Tuzla* island *(*or the *Kerch* crisis) in October 2003 has to be mentioned as the most critical in terms of national security, when crude or provocative actions by the local Russian authorities led to such a critical situation that some experts and analysts began to discuss various scenarios of an armed conflict between Ukraine and Russia. Although

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[25] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454
[26] Ibid
[27] For background, see Lorne J. Kavic, *India's Quest for Security: Defence Policies, 1947-1965 (Berkely: University of California Press, 1967)*
[28] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454
[29] Ibid
[30] See Central Intelligence Agency "Indian Test Will Spur Pakistani Effort," *National Intelligence Daily,* May 24, 1974, declassified document available at the CIA's Electronic Reading Room*, (*www.foia.cia.gov*).*

fast moving but sufficiently violent and acute, the depth and seriousness of the crisis could hardly be compared to the situation in, for example, South Asia and in this respect could hardly trigger a nuclear weapons programs. Nevertheless, it was this crisis that inspired Yuriy Ekhanurov who made a resonant statement on possible reconsideration of Ukraine's non-nuclear status quoted above.

Lavoy contends that a country is prone to make a decision to go nuclear in the case of "a major shift in country's security situation – particularly the initiation or acceleration of a nuclear bomb program by a neighbor", and situation should emphasize "the need to scrutinize the interplay of that country's strategic myths and mythmakers in order to provide policymakers with early warning about the creation or acceleration of a new national nuclear weapons program."[31] When doing so it is important and challenging to understand threat perceptions from the subjective perspective of the security officials and political elites of the country under consideration rather than, e.g., the U.S., U.K., or Russia. Bearing in mind such an approach one could conclude that for Ukraine the indicator of changed security circumstances is pointing at "*variable security conditions"* while the "*calm" indication* has been already passed.

Bruno Tetrais (ref. to footnote 17) said that "*the most important reason for the absence of further nuclear proliferation in Europe was the U.S. security guarantee to its European allies*". On the other hand, "*the Soviet Union, for its part maintained its own security guarantee and nuclear presence on the territory of several Warsaw Pact members. It is no coincidence that Sweden, Yugoslavia, and Switzerland were all outside the bipolar military system: Nuclear guarantees proved an efficient nonproliferation tool, and only those who were not covered by them considered going nuclear*."
Due to current uncertainty with respect to guarantees from nuclear weapons states to Ukraine, unclear prospects of European and Euro-Atlantic integration processes, Tetrais believes that after 2015, provided continued tensions with Russia, failed accession to NATO and EU, and further weakening of the NPT, there is some probability (around 5%) that *"a nationalist government in Kiev might one day consider that its security could only be assured by an independent nuclear program.*"[32]

6. Indicators of Nuclear Program Dynamics

When envisaging the last, third category, of the indicators proposed by Lavoy, namely, indicators of nuclear program dynamics, it should be stressed that according to the U.S. expert, "the most reliable way to detect whether a country is building nuclear weapons is to observe it in the act". However, in the case closed countries the Western intelligence agencies might not be able to receive necessary information about the start of a nuclear weapons program. While the "technical "observables" will only be observable well after a country has sorted out the domestic political and international security ramifications and feasibility calculations of going nuclear. Thus, while it is absolutely essential to monitor a country's technical progress on nuclear weapons production, this approach cannot provide concerned policymakers with early warning of an impending nuclear program."[33] But Lavoy points at other technical warning signs "that can be tracked by governmental as well as non-governmental analysts to gain awareness of the early steps of a nuclear program before it really gets up and running."[34] They are presented below.

Scientific Training and Education

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[31] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454
[32] Nuclear Proliferation in Europe: Could It Still Happen?, *Bruno Tetrais,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 569 - 579
[33] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454
[34] Ibid

Lavoy contends that "unless a country has a very well-developed nuclear energy program, such as Japan has today, one the first steps a nuclear weapons aspirant must take is to send its scientists and engineers abroad for training and education in weapons-related fields.

The case of Iraq

Numerous students were sent abroad for scientific education, and many of them did not even know about the Iraqi nuclear weapons program until they finished their degrees and returned to Iraq. Other Iraqi students were aware of the bomb program, and were used by the Iraq Atomic Energy Commission to collect technical studies or locate equipment needed by the clandestine effort.[35] "Knowledge of the subjects students are sent abroad to study, and awareness of any suspicious activities in which they might be engaged, can provide important clues to the intentions of potential nuclear weapons aspirants."[36]

What about Ukraine?

It is clear that *scientific training and education* in the case of Ukraine tells little about the propensity for nuclear proliferation since Ukraine has inherited an impressive nuclear complex from the Soviet Union, including highly qualified scientific and technical personnel. On the other hand, at the moment Ukraine has no enrichment and reprocessing technologies, and if a decision is made to acquire relevant technologies, its full implementation might require introducing changes and probably expanding the training system in relevant Ukrainian institutes and universities. Additionally, students specialization in these technologies takes several years (in Russia, e.g., - no less than 2 years). Other option – training and education abroad – would give more possibilities for the international community to track this indicator of a nuclear weapons program (if any).

Procurement efforts

"To initiate a nuclear weapons production program, a country must devise a procurement strategy and infrastructure to import sensitive materials and technologies most of which fall under export control laws of supplier countries. The first set of indicators has to do with the nature of the technology and materials a country is trying to acquire."[37]

The target of country's acquisition efforts also can be an indicator of a new orientation in that country's nuclear policy. According to Rublee[38] throughout the 1960s the Egyptians approached the Soviet Union and China for technical assistance, and also allegedly for transfer and or purchase of a nuclear device.

"Finally, the manner in which a procurement program is organized may reveal important clues about objectives of a country's nuclear program."[39] For example, during the 1990s Saddam Hussein created a large network of Iraqi front companies to procure illicit goods, services, and technologies for Iraq's WMD. In addition, numerous Iraqi and foreign trade intermediaries hid the identity of the end user, and changed the final destination of the commodity to get it to Iraq.[40]

The Role of Military and Intelligence Organizations in Nuclear Efforts

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[35] Institute for Science and International Security, "Case Studies of Illicit Procurement Networks: Education and Training," 2003, www.exportcontrols.org /education.html.
[36] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454
[37] Ibid
[38] *Rublee M.R.* Egypt's Nuclear Weapons Program: Lessons Learned // The Nonproliferation Review. – 2006. – Vol.13. – No.3 (November)
[39] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454
[40] Iraq Survey Group, *Comprehensive Report,* Vol. 1, "Regime Finance and Procurement," Sept. 30, 2004, esp. pp. 3-5, www.foia.cia.gov/duelfer/Iraqs_WMD_Vol1.pdf.

"Another indicator of nuclear weapons-related activity is the involvement of military or intelligence officials and organizations in ostensibly civilian research and development programs."[41] The facts exemplify this statement are well-known with regard to Iraqi WMD programs. The same situation is observed around the Iran nuclear program. Fitzpatrick points out that the Iranian armed forces have been involved in the nation's uranium mining, milling and centrifuge enrichment efforts – a situation that would be difficult to imagine if Iran's nuclear program were strictly peaceful.[42]

7. Conclusions, or What Do Indicators Indicate?

Even a brief analysis of some methods and approaches used by experts and analysts to track possible changes in nuclear policy of one country or another has shown quite clearly the international community's concerns with regard to one of the most dangerous today's challenges – nuclear weapons proliferation. Ways and reasons leading a specific country to go nuclear may vary widely, but, according to Robert Einhorn[43], a former U.S. nonproliferation official now with the Center for Strategic and International Studies in Washington DC, "the future path for any nation (or non-state actor) to nuclear arm acquisition will be different than the first nine or ten nuclear-armed states mainly because the international community is now much more aware of and concerned about the threat of proliferation. Because every nation that might seek nuclear forces in the future is currently a non-nuclear weapon NPT member, and therefore subject to strict IAEA safeguards. In this connection Einhorn points out at that future nuclear weapons states must either (1) operate a clandestine program without being detected; or (2) develop overt fuel-cycle capabilities with the intention of withdrawing from the NPT at some future point; or (3) - both.

Ukraine as a sovereign state has a right to choose any option with regard to its economy development, in general, and nuclear power industry, in particular. But when doing so the political elites should be aware that nuclear power industry progress due to research and development efforts and acquisition of nuclear capabilities has a dual nature – such activities are hard to distinguish from the elements of nuclear weapons program. The experience has shown that each country which in the recent years runs its clandestine nuclear weapons program originally stated about creation of indigenous uranium enrichment capabilities ostensibly for peaceful purposes. In this connection the international community will use all available tools to reduce probability of any country's nuclear program development in an unfavorable, in terms of nuclear proliferation, direction.

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[41] Peter R. Lavoy, *Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses,* The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 433-454

[42] *Mark Fitzpatrick,* Lessons Learned from Iran's Pursuit of Nuclear Weapons, The Nonproliferation Review, Vol. 13, No.3, Nov 2006, pp. 527-538

[43]

PAUSE AS A DIPLOMACY TECHNIQUE

Daria Friedman

The new year 1386 for Iran (on 21 March the Islamic Republic of Iran celebrated the New Year and advent of spring according to the solar calendar) started all awry. Just as official and governmental institutions had broken up and average Iranians exchanged New Year gifts called Eidi (a sum of money) at the Haft Sin family dining table, "greetings" from the international community began to arrive. The UN Security Council was the first to greet Iranian people. The gift came as Resolution 1747, imposing new sanctions on Tehran for the refusal to halt its uranium enrichment activities.

Following a short discussion, the Resolution was unanimously approved on Saturday, 24 March. Yet, there came a surprise at that point as well. Two days before the vote, the Republic of South Africa currently holding the UN presidency proposed to make the new sanctions against Iran as moderate as possible. Another two States belonging to the 10 of non-permanent UN SC Members: the Islamic Indonesia and Qatar decided to support Iran. They demanded that the Middle East be mentioned in the Preamble as a region to be free from nuclear weapons. It was immediately perceived by observers as prompting the Security Council to turn to Israel that had long been suspected of clandestine possession of a nuclear bomb. The Britons, Frenchmen and Americans, however, were quick to break those countries' resistance and once again demonstrated who the boss is in the UN.

It did not go unnoticed that the voting was held on Saturday. Numerous media, including Ukrainian ones, noted that the Saturday voting was an extraordinary event though not unique for the UN. The previous resolution on Iran, Resolution 1737, was also voted on Saturday, 23 December last year. According to one version, such haste was due to the U.S. and the three co-authors of the Resolution (United Kingdom, France, and Germany) unwilling to welcome Iranian President Mahmoud Ahmadinejad, who had repeatedly voiced his intent to speak at the session, in the UN SC headquarters. It is very likely the reason why Americans tried their utmost to slow down the process of issuing visas to Iranian delegation (this is how Iranian President's aides explained the reason why the President had not made it to the UN Headquarters). And though Ahmadinejad himself got his visa in time, many members of his delegation and the crew in charge of the special Tehran to New York flight were kept waiting for authorization to enter the U.S. on the pretext of inappropriate visa paperwork. As a result, the presidential visit was canceled and it was Foreign Minister Manouchehr Mottaki who flew to New York. Another explanation may be passing, namely that Tehran had realized that tougher sanctions were inevitable and with the votes already fixed in advance of the meeting, a passionate speech by Iranian leader (what else could be expected from Ahmadinejad?) would have sounded as a minimum ridiculous.

Resolution 1747 toughens, though not so drastically as the U.S. wanted, the sanctions against Iran already imposed late last year. It was preceded by the already mentioned Resolution 1737 that gave Iranians 60 days to stop their uranium enrichment work.

Since Tehran refused to comply with the international community's requirements, the community toughened the sanctions and gave Iranians another 60 days. If Tehran persists in ignoring the calls for prudence, the IAEA Director General ElBaradei's report to that effect will be followed by yet more rigorous sanctions.

You may remember that the IAEA report published 22 February last year indicated that 4 cascades of 164 centrifuges each had been installed at Natanz. Furthermore, Iran is completing the assembly of another 2 cascades with 328 centrifuges enabling uranium enrichment and stockpiling.

Just after the voting, a Resolution 1747 initiator, UK Ambassador Emyr Jones Perry told what Iran can expect once it complies with the international community's requirements. According to him, as soon as uranium enrichment is frozen and the freezing confirmed by IAEA, the Resolution sanctions will be lifted. Iran's right to development of peaceful nuclear programmes pursuant to the Non-proliferation Treaty (NPT) is respected. The Security Council continues to offer trade benefits that will be extended to Iran once it is back at the negotiations table. But before that Iranians must stop uranium enrichment and other banned nuclear and missile activities.

And in the meantime, pending better times, the financial assets of 13 organizations and 15 individuals of direct relationship to Iran's nuclear and missile programme will be frozen along with foreign accounts of a leading Iranian bank, State-owned *Sepah*. Arms exports from Iran are banned as well.

As to Indonesia and Qatar's motion to allude to Israel in the Resolution, the Middle East clause was included just as a reference to last year's IAEA Board of Governors Resolution "recognising that a solution to the Iranian issue would contribute to …realising the objective of a Middle East free of weapons of mass destruction, including their means of delivery."

A number of Resolution provisions are of a recommendatory nature. In particular, this is true for arms supplies to Iran. The document "calls upon all States to exercise vigilance and restraint in the supply… of any battle tanks, armoured combat vehicles, large calibre artillery systems, combat aircraft, attack helicopters, warships, missiles or missile systems" to Iranians. One must be equally vigilant over the travel of Iranian high-ranking officials, primarily those responsible for nuclear and missile matters. The Security Council also encouraged all countries and international organizations not to offer loans or other types of financial aid to Tehran. Nevertheless, these restrictions do not cover humanitarian aid programmes and contracts already concluded earlier. Russia played a major role in the appearance of that clause in the final Resolution text. The Russian side supported the draft only after such wording was elaborated and agreed that could not threaten Russia's arms supply and other contracts with Iran. "If some individuals or organizations have been placed on the ban list with their accounts frozen, but there are contracts concluded with them prior to that, payments under those contracts must not be inhibited. We made a special emphasis on that point", Russia's Ambassador to the United Nations Vitaly Churkin told the media. I.e. Russian arms contracts for supplying S-300 and TOR-1 anti-aircraft systems must not be subject to sanctions. By the same token, the Busher NPP construction has nothing to do with economic pressure on Iran and the new Resolution.

Russia being so quick to nod through the new anti-Iranian sanctions came as a surprise, to a degree. This country has a long-standing record of being the main obstacle to the taming of Iran's nuclear ambitions. Together with China, it fervently upheld the right of Iranian people to nuclear energy development. But this time Iran must have overstretched Russia's patience at last. Iran had long been capitalizing on Russia's desire to be on good terms with its Southern neighbour – a major Islamic power. Moscow grew ever more irritated with Iran's reluctance to make any concessions in response to Russian good neighbourliness. The last straw was supplied, as many believe, by the Busher NPP construction scandal. In early March of this year Russia declared they were suspending the 97% complete construction for lack of funding. Iran rejected all accusations and insisted that Russia should comply with the construction schedule to achieve first criticality in September 2007.

As must have been expected, Tehran did not tarry to respond to the adopted Resolution. On the very next day Ahmadinejad declared that Iran would reconsider its attitude to countries that had supported the UN SC document. He also emphasized that Iran would not stop enriching uranium "even for a single second". In addition, the Iranian leader reiterated once again that Iran's nuclear programme is peaceful and in line with international norms.

The current nuclear programme situation can be described as calm before the storm. The world community has taken another pause before making a new, more difficult decision. There is no doubt it will be inevitable to make. Because the question whether Tehran will comply with the imposed requirements within the allotted two-month term can be answered already at this point: no, it will not. Therefore, we may well deduce that it is not exactly Iran that the UN SC Permanent Members allotted the Resolution-given 60-day time limit to. This is timing they have defined for themselves– to cool off, get a clear head, and prepare themselves both morally and materially for the imminent pay-off. And though Russia has repeatedly underscored that the Security Council shall proceed based on UN Charter Article 41 that provides for nothing but economic pressure, Tehran has no writ of protection. The likelihood of events developing according to the worst scenario – that of military interference – is now dismissed by none.

News on the U.S. intent to launch a military campaign against Iran first appeared back in January 2007. With reference to Pentagon sources, Kuwait media informed that the U.S. was planning a non-contact military action against Iran. Today the schedule is being specified already – this April.

It appears to be no coincidence in this context that the U.S. has been building up its military presence in the Persian Gulf area. Already deployed here is a major "strike group" of U.S. Navy including aircraft carriers John C. Stennis and Dwight D. Eisenhower as well as cruisers, frigates and missile-armed destroyers (up to a couple of dozens of battleships and supporting vessels). A few U.S. Marine Corps units with assault ships have been deployed in southeastern Iraq.

Tehran is not slacking off either. In response to the U.S., Iranian Armed Forces have conducted a whole series of maneuvers this year, demonstrating their readiness to fence off any attack.

It should not be dismissed that, within the Pentagon itself, Bush's military action plans against Iran are not supported by each and every general. They are convinced that the U.S. with all of its exorbitant military strength will still fail to "cope with the Islamic Republic". Furthermore, as UK weekly *The Sunday Times* wrote in February, five U.S. Generals and one Admiral have stated their intent to resign if ordered to launch a military strike.

In a way, the current Pentagon chief Robert Gates set the record straight by giving a statement on the eve of Resolution adoption. He alleged that despite the involvement in the Afghanistan and Iraq wars lasting over 5 years already, the U.S. feels like having the stamina to wage another powerful military campaign.

But there is no "enough is enough" for Tehran. Just as journalists and experts plunged into discussions of geopolitical shifts and shake-ups that would be inevitable if the U.S. eventually embarked on a warpath, Iran gave a new motive for the world community to get upset.

It is the United Kingdom that currently represents Iran's primary opponent. In late March, 15 British seamen were captured by Iranian military men in disputed waters of the Persian Gulf. According to experts, by spurring a conflict with London, refusing to set the detainees free, Tehran is willing to demonstrate power, protest against the new UN sanctions, and readiness for confrontation.

It is quite probable, however, that in that manner Iran is trying to demonstrate to its people that the West is hostile and prepared for military action against them.

Therefore, as we see, Iran would spare no effort to maintain the lead in news-breaking. The only country that sometimes manages to divert the attention from the Iranian nuclear crisis is Northern Korea.

The world diplomacy was in the midst of celebrating the victory in round 5 of the six-party talks on the PDRK nuclear programme, held in Beijing in February, when North Koreans once again decided to tickle their opponents' nerves.

You may remember that an agreement was reached in February that North Korea would gradually write off its nuclear programme in exchange for fuel supplies and better terms with the world community.

Disregarding the earlier agreement, PDRK withdrew from the March six-party talks. The main reason why the talks failed had been a delay in wiring $ 25 million from North Korean accounts at the Delta Asia Bank in Macau. The U.S. Department of Finance defrosted the accounts, but never lifted the charges against Delta Asia of complicity in Pyongyang's laundering the money allegedly made out of trade in arms, narcotics and currency counterfeiting. In turn, the Chinese bank to be wired the $ 25 million to refused to accept the wiring on the grounds that a PRC bank may not jeopardize its reputation. North Koreans invited Russians to mediate the situation. When the North Korean delegation had already left Beijing, head of the South Korean delegation Chun Yung-Woo alleged that PDRK was contemplating a transfer of money from Delta Asia to its accounts in Russian banks. Yet this idea was not met with much enthusiasm in Moscow; following the Chinese example, it would not like to deal with questionable money. So far, Russians are taking their time, musing over the proposed deal.

Yet even if North Korea gets its money soon, there are still a number of obstacles to compliance with the first part of the February agreement – sealing off the Yonben nuclear complex– let alone with the remaining agreement clauses whereby all nuclear projects shall be terminated. Americans insist that PDRK must report their allegedly available uranium enrichment programme that, in fact, led to the "second North Korean crisis". North Koreans continue to deny the existence of such a programme.

Most observers are very careful in their judgment of the situation (to avoid croaking disaster!). The recent events, they believe, will not preclude the parties from resuming the talks in the near future. Yet there is no point expecting events to develop rapidly. The upcoming talks will most likely turn into long-run bargaining over who first shall do what.

It is quite difficult to forecast how the situation will be unfolding about the Iranian and PDRK's nuclear programmes. You can expect anything from both the Iranian and North Korean leaders. Their unpredictability and sometimes incongruity and irrationality of action are no more any surprise to anyone. When observing the world diplomacy's efforts in settling the Iranian and North Korean problems, one is led to think about ill-chosen occupations. Slightly paraphrasing famous American actor and author George Burns: Too bad that all the people who know how to settle diplomatic conflicts are busy driving taxicabs and cutting hair.

Participation of Ukraine in the G8 "Global Partnership Initiative against the Spread of Weapons and Materials of Mass Destruction"

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Ukraine entirely realized the importance of launching and implementing of the G8 (the United States, the United Kingdom, France, Japan, Germany, Canada, Italy and Russia) Initiative "Global Partnership against the Spread of Weapons and Materials of Mass Destruction" (hereinafter: the Global Partnership) for the whole world's community as well as development of Principles for prevention of acquisition or production of arms and materials of mass destruction by terrorist or those that harbour them and Basic Principles for new and broadened projects of cooperation in the frame of the Initiative.

Referring to the background of Ukraine's participation in the Global Partnership it is necessary to point out several basic aspects.

During the G8 State and Government Leaders Summit that was held in June 2002 at Kananaskis (Canada) "The Global Partnership Initiative against the Spread of Weapons and Materials of Mass Destruction" has been launched.

In September 2004, the G8 made a positive decision as to acceding Ukraine to the Global Partnership as an aid-recipient.

On January 20, 2006 during consultations of experts from the Secret Service of Ukraine, Ministry of Foreign Affairs of Ukraine, State Nuclear Regulatory Committee of Ukraine, State Border Service Administration, State Customs Service of Ukraine and Ministry of Ukraine of Emergencies (MUE) with the U.S. delegation on specific issues devoted to prevention of nuclear and radioactive material illegal transfers a bilateral document "Common understanding of Ukraine and the USA delegations concerning priority needs of Ukraine in improving of counteraction ability in illegal transfers of nuclear materials" was signed.

On the initiative of the MFA, the State Nuclear Regulatory Committee and with support of the Swedish Nuclear Power Inspectorate, the German Association on Nuclear Facilities and Reactors Security (Gesellschaft für Anlagen- und Reaktorsicherheit mbH - GRS) and Radiation and Nuclear Safety Authority (STUK, Finland) and technical support of Scientific and Technical Center on the Export and Import of Special Technologies, Hardware and Materials (STC) 24-26 January 2006 in Kyiv the international conference "Control and Security of Nuclear Materials in Ukraine: Past Achievements and the Global Partnership Agenda Ahead" was held. During the preparation of the conference it was foreseen that this event should provide contacts between potential donors and recipients.

At the mentioned conference Ukraine submitted in total 40 project proposals of cooperation in the framework of the Global Partnership. Its own interest on launching of some of mentioned projects was expressed by several donors of the initiative, i.e. the United States, the Netherlands, Sweden, Canada, the United Kingdom and the EU.

Mentioned international conference that was conducted in Kyiv and 40 project proposals prepared by Ukraine in this regard served as peculiar commencement for cooperation process of our state in the frame of the Global Partnership.

In a certain stage on the basis of individual proposals from those 40 mentioned above 15 projects encompassed (embraced) of nuclear smuggling counteraction issues was settled (defined). Afterwards (Later on) in summer 2006 two more projects were added taking into account the expressed readiness of Japan to finance them. In the autumn of 2006 one more project was added devoted to strengthening of physical protection of facilities for store of biologically dangerous materials with financial support from the EU. So, at present Ukraine has 18 projects in the frame of Global Partnership.

Ukraine continues to work with the aim to involve international financial and technical support for implementation of projects, connected with the initiative "Global Partnership against the Spread of Weapons and Materials of Mass Destruction".

The thing first of all is 18 projects devoted to the prevention of illicit trafficking of nuclear materials on the ways of international communications, introduction of international standards and measures of physical protection of facilities for storing of waste high active ionizing sources and biological pathogens, improvement of national legal base owing to its harmonizing according to the international obligations in the field of struggle with the nuclear terrorism and involving of Ukrainian researchers for identifying of smuggling radioactive materials, their origin and overlapping of the contraband traffic.

Several donors of initiative express their interest in launching of the above mentioned projects, i.e. the USA, the Netherlands, Sweden, Canada, the UK, and the EU. Ukraine highly estimates the aid of the USA and other donor countries in solving of concrete problems in our country in the frame of Global Partnership.

From Ukrainian side recipients are as follows: SNRCU, MUE, State enterprise "Radon", State Border Service, National Academy of Science, STC etc.

It is expected that implementation of projects will allow to solve several problems in sphere of non-proliferation and will facilitate strengthening of efforts of international community to struggle against the spread of weapons and materials of mass destruction.

Ukraine is interested in widening of launched projects taking into account subject of the Global Partnership as well as its importance for out state bearing in mind the tasks faced in this sphere. This is a case that new project proposals will appear as yet an important problems still exist connected with the rest of 40 project proposals, that was presented at the January 2006 conference, especially as representatives of such donor-countries as Sweden and Finland along the informal discussion regarding the Global Partnership realization that was held in December 2006 proposed to take into consideration all project proposals brought forward by Ukrainian side.

It is necessary to indicate that our country takes measures in order to avoid probable negative factors such as: groundless and unfounded exceeding of cost of works for projects implementation that not coincide with similar works estimates of donor-countries, bureaucratic obstacles and dilatoriness; very slow of taken obligations.

In order to avoid such negative factors on projects implementation and to find out the ways of establishing of international cooperation in this direction the interagency meetings and workshops are being conducted. Along the meetings issues concerning the implementing status for each of 18 projects are being discussed as well as proper attention to the development of additional project proposals in the frame of the Global Partnership.

As regard to the status of projects implementation, fulfilment of some of them is complete, some other is under work for effective implementation.

Sharing of costs from the budget for the project No.3 (Accelerating the Radioactive Source Registry Development), our state demonstrates political readiness to play the role not only as the

recipient within the initiative but also to meet the needs in the field of non-proliferation independently.
The important event within the Ukraine's participation in the initiative was the roundtable "Ukraine and WMD Non-Proliferation: Advancing the Global Partnership Initiative" conducted 7 February 2007 in Washington at the premises of well known Centre for Strategic and International Studies.

High level officials of the state authorities of the USA (U.S. State Department, Department of Defence, and Department of Energy), representatives of the diplomatic missions, leading analytical centres on issues of security, NGO's and world mass media (CNN).

The main reporter for this event was Mr. V.Belashov, Director General of the MFA Armaments Control and Military-Technical Cooperation Department. He informed participants of the roundtable about policy and efforts of Ukraine in the sphere of disarmament and WMD non-proliferation, first of all in the context of launching and implementing of concrete programs of international cooperation in the frame of mentioned initiative. During the roundtable steps and efforts of Ukraine in solving of urgent problems of disarmament and non-proliferation were positively estimated.

A meeting of the Ukraine-USA Working Group on issues of non-proliferation and export control was held in Washington 8-9 February 2007. During the event USA representatives positively estimate Ukraine's work in the frame of Initiative and express gratitude for cooperation between the G8 members and Ukraine.

More than two years passed since the USA established the Nuclear Smuggling Outreach Initiative (hereinafter: Initiative), encompassing regions and countries where the order of the day was counteraction to the nuclear smuggle threat. From the beginning of cooperation with Ukraine, the U.S. involved to Initiative four more countries- Kazakhstan, Kyrgyzstan, Georgia and Tadzhikistan. For the coming perspective the USA is planning to involve to the Initiative about 20 countries, mainly from the former Soviet Union, Asia, Eastern Europe, Middle East and Africa. In this regard cooperation with Ukraine will serve as a model of successful partnership that can be used with the other countries.

Further discussion of issues with regard to the participation of Ukraine in the Global Partnership was held during the regular meeting of the GP Working Group in Berlin 27 February 2007. During the meeting with the assistance of 70 representatives from the G8 states, donors and recipients of the Global Partnership issues of status and prospective of GP projects implementations were discussed in context of completion of the first half of the term of its validity (first half of the reported period –2002-2006) as well as further development of cooperation in this direction.

The main purpose of participation of the Ukrainian delegation in the meeting was to prove the principal interest of our state in receiving of assistance for the concrete program in the frame of the Global Partnership on the basis of 18 projects, disseminated by Ukraine among participants and to conduct meetings with the delegations from the USA, Germany, Sweden, Canada, France in order to examine prospects of launching new projects.

Unfortunately it is necessary to mention about some obstacles with regard to the projects implementation in Ukraine. The main of them are as follows: insufficient internal coordination of activity and the level of information exchange. It is due to the limited skilled and financial resource in the ministries and agencies involved to the implementation of Ukraine's projects in the frame of the Global Partnership in some cases there is insufficient monitoring of the status and analysis of implementing 18 projects.

In this regard it is necessary to encourage more widen public involvement to cover the projects implementing process in the frame of the Global Partnership and strengthening of efforts of all bodies of the state power involved for the successful implementation of projects in Ukraine.

Globalization required from each country improvement of national system of control over the weapons of mass destruction (WMD) as unsolved issues is a potential threat to the whole international security.

It is necessary to mention in this regard that Ukraine, as a state that voluntary resign the nuclear weapons and took the non-nuclear status, persistently and consistently advocate for measures taken to strengthen nuclear non-proliferation regime.

Ukraine has taken an active part in all available international export control regimes such as Nuclear Suppliers Group, Missile Technology Control Regime, Zangger Committee, Australia Group, Wassenaar Arrangement and is only one from the former USSR republics that is a party to the all five regimes. This fact is an absolute evidence of gaining authority by our country on the international scene.

In 2006 according to international obligations of Ukraine, as the Party to the international export control regime "Wassenaar Arrangement" the Resolution of the Cabinet of Ministers of Ukraine No.277 dated 01.03.2006 "On Amending of Addendum to the Procedure for State monitoring of International Transfers of Dual-Use Goods" was adopted.

Besides due to obligation of Ukraine according to participation in the *Chemical Weapons Convention* the Resolution of the Cabinet of Ministers of Ukraine No.809 dated 07.06.2006 "*On amending of the Procedure for State Monitoring of International Transfers of Dual-Use Goods*" was adopted.

In order to clearly specify conditions that require a permit of the State Service for Export Control of Ukraine prior conclusion of a contract the Cabinet of Ministers of Ukraine adopted a Decree No.973 dated July 12, 2006 "On the Introduction of Changes and Amendments to Statements of Procedures for State Control of Pre-Contract Negotiations on International Transfers for Military and Dual-Use Goods".

The new feature in the sphere of state export control is the increase of the role of non-governmental organizations, in particular analytical centres as well known is a sign of democratic society development.
Recently in Ukraine significantly increased the quality of specialized editions that monitor and thoroughly analyzing non-proliferation problems on a high professional level. International conferences, presentations, roundtables devoted to problems of WMD non-proliferation and issues of export control have been conducting on the regular basis.

Ukraine advocates the application and strict adherence to available tools for prevention of WMD proliferation first of all those belong to the UN tools. In this regard the adoption of the UN Security Council Resolution 1540 indicates more active involvement of the UN to solving WMD proliferation problem and drafted a concrete procedure for counteracting the threat of nuclear, chemical, biological weapons, means of their delivery and the threat of terrorist acquisition.

In October 2004 Ukraine submitted to the "Committee 1540", created for implementation of this Resolution the National Report on implementation of its theses and in October 2005 – additional, detailed information on this issue. In particular the Report describes responsible and consistent policy of Ukraine in the field of weapons control and WMD non-proliferation, including measures of accountancy, export and customs control, physical protection and national control over the export and transhipment of WMD, its components and their delivery systems is covered in the Report.

Ukraine has supported prolongation of the 'Committee 1540"mandate until April 2008 (UN SC Resolution 1673 dated 27.04.2006).

With regard to solution of WMD non-proliferation problems our state pays great attention to normative and legal provision against illicit trafficking of nuclear and radioactive materials. In particular the Cabinet of Ministers of Ukraine adopted by Decree No.1092 dated 03.08.2006 *the*

State Program "Provision of safe storage of waste high activity ionizing sources". Measures, connected with this program devoted to removal (withdrawal) and storage of waste high activity ionizing sources in the safe depository.

In order to attract more easily an international technical assistance the Decree of the Cabinet of Ministers of Ukraine "*On establishment of the integrated system for attraction, use and monitoring of international technical assistance*" was adopted by the Decree No. 153 dated 15.02.2002. According to the Decree " when the ministries, other central and local bodies of executive power are recipients, the texts of agreements (treaties, memoranda, protocols) on issues of technical and economic cooperation that stipulate relations among a donor and a recipient should be agreed with the Ministry of Economy and European Integration"

Another important document in the sphere of physical protection and non-proliferation - the "Program of actions regarding establishment of the State Register of Ionizing Sources" was adopted by the Decree of the Cabinet of Ministers of Ukraine 04.08.1997 No.847.

It is worth to mention that for the time being of accelerating globalization and the task No 1 is to refrain from repetition of the terrible accident 11/09/2001, the threat of nuclear terrorism and WMD proliferation arises as the most significant and immediate nowadays challenge.

With the aim to establish the global net of cooperation for counteracting this threat 15 July 2006 during the G8 Summit in Saint-Petersburg President of U.S. Georg Bush and the President the Russian Federation V.Putin announced launching of a new initiative to prevent nuclear terrorism and the spread of nuclear and radioactive materials – *the Global Initiative to Combat Nuclear Terrorism (GICNT).*

As is generally known the GICNT devoted firstly to prevent acquisition, transportation and use by terrorist of nuclear materials and radioactive substances or handmade explosive devices made by this materials as well as hostile actions with regard to nuclear facilities.

30-31 October 2006 in Rabat (Morocco) was held first meeting of foreign affairs deputies from the country-participants of the Global Initiative for struggling against nuclear terrorism acts, and during the event a Statement of Principles for upcoming work of the Initiative was endorsed.

Ukraine welcomed approval of mentioned document devoted to preventing of illicit proliferation of nuclear and radioactive materials and its use for terrorist purpose as well as counteracting of nuclear terrorism.

12-13 February 2007 in Ankara, Turkey was held the second meeting of representatives from 13 GICNT member countries. Resulting from the meeting its participants resolved the *Statement* and approved a *Plan of Work* on GICNT implementation for the period 2007-2008.

13 February 2007 the President of Ukraine V.Yushchenko has taken a decision concerning joining the GICNT (a commission of the President of Ukraine No.452/6733-01 dated 13.02.2007) and according to the concerted procedure this decision was notified to the US and Russia parties.

At present the issue on concrete participation of out state in the *Global Initiative to Combat Nuclear Terrorism* is under elaboration.

The Global Partnership is an important sphere of international cooperation. Well timed and effective implementation of Global Partnership projects in our country should became a Ukraine's valuable contribution to WMD and appropriate materials non-proliferation. Yet, efforts of the G8 member states and especially the USA and other donor countries in the frame of this initiative are being made within activity devoted to strengthening of peace, security and stability according to aspiration and interests of Ukraine.

KALEIDOSCOPE

JNFL announced the cascade test of centrifugal fission uranium isotopes.

On 2 April of the current year a company "Japan Nuclear Fuel Ltd." (JNFL) has announced testing of upgraded system of uranium isotopes centrifugal fission. As JNFL press release reported, the company counted on enriched uranium producing on making use of this system in 2010. Centrifuges testing aimed at improving their operating characteristic and productivity have been carrying out since the year 2000.
Japan imported the main part of uranium enrichment service for the purpose of nuclear energy. However in Rokkasho the JNFL company operating an isotope separation plant, capacity (power) of which will be 1,5 million EPP units per year when design parameters will be reached. In the JNFL estimation this will be sufficient for provision of nuclear fuel for third part of nuclear power plants available in the country.
Cascade test is the final stage prior industrial operation of the new system. Japanese program of uranium provision is aimed for the peace purpose, JNFL press release reported. This is confirmed by the IAEA verification conducted at the enterprise more than twenty times per year. Beside the company strictly follows requirements on both safeguards and physical protection.

Nuclear.Ru

President of Uzbekistan signed the Law on entering into force a Treaty on nuclear weapons free zone in Central Asia.

Uzbekistan ratified the treaty Nuclear Weapons Free Zone in Central Asia. The Treaty on nuclear weapons free zone in Central Asia" was concluded on 8 September 2006 in Semipalatinsk. The Law "On ratification of the Treaty on nuclear weapons free zone in Central Asia" signed by President Islam Karimov and published on 3 April this year in official mass media came into force.
26 January the Law was adopted by the Legislative Chamber of Uzbekistan and 30 March was approved by Senate.

The UN supported signing of Treaty by five states of the region. 6 December 2006 the UN General Assembly approved the Resolution "Establishment of nuclear weapons free zone in Central Asia (CANFZ)", provided by the Uzbekistan's delegation of behalf of the Central Asia states.

Interfax

By 2015 Jordan is going to build the first NPP

By 2015 Jordan is going to build its first nuclear power plant according to the report of the Ministry of Energy dated 2 April. His employees have been working at the moment for the timeframe of the project realization. Eastern neighbor of Israel will use nuclear energy for different purposes first of all for energy generating water distillation.

Minister of Energy Khaled Shraydeh said that Jordan also turns to projects implementation for design of plants that working on the solar and wind energy. Shraydeh has a doctor degree in the field of nuclear physics which he studies in one of a Dutch university. Arab newspaper "Al Khayat" informed that in Jordan universities this subject is launched in order to prepare the local specialists for nuclear facilities operation.

In April Mr.Mohamed ElBaradei, the leadership of the International Atomic Energy Agency (IAEA) will visit Jordan in order to discuss the issue of cooperation between the IAEA and

Hashemite Kingdom of Jordan. Jordan is a Party to the Nonproliferation Treaty and according to the Treaty the IAEA is verifying the programs of the nuclear energy use for the peaceful purpose. It is reported that Mr.Khamza, the brother of the Jordan monarch will take the lead in the Committee of Energy. The Committee should examine the needs of the country in different energy sources for the coming years. Jordan desert according to the geological estimation has 2% of the world uranium reserves. Several months ago Egypt informed its intention to renew the nuclear project postponed about two decades ago. There is information regarding nuclear plans of other Arab states such as Saudi Arabia, Syria and the United Arab Emirates.

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