

WAR IN YUGOSLAVIA - ENVIRONMENTAL IMPACT ON SOUTH-EAST EUROPE

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Introductory observations

Blindingly obvious, or so it might seem, is the case for an International Court of the Environment. No better way to give form to the ideals and to translate into practical case-law the values and the accumulated expertise of the Biopolitics International Organisation. But not so clear, from here, as to how to move forward. Yes, the proposal is now clearly articulated. But how to get it on to a credible inter-governmental political agenda, and thence into some practical programme for establishment on its own account or within some programme of reform of the United Nations?

There is one institutional avenue which the project's proponents should persist in. It is exemplified by the Council of Europe Parliamentary Recommendation hereunder, on a subject which only a few months back was thought not so much to be too bold and intractable – as might be hitherto the cause of resistance to the International Court proposal – but to be far too "sensitive" to be introduced on to any international political agenda – i.e., the environmental impact of Nato's military operations in 1999 over south-east Europe.

Embodied within a Recommendation of the Council of Europe's Parliamentary Assembly, these issues and proposals automatically get inscribed on the agenda of our Organisation's 43-Member Committee of Foreign Ministers. Does that mean action in the direction recommended can now be expected? Of course not. But it does mean that openings for political action to this end and for pressures on member governments and their relevant ministries have, for a certain space of time, been created. Whether these opportunities are taken and made to bear fruit will depend – as it should in a democracy – on the energy and determination of representatives of "civil society" and their capacity to persuade, at national levels, government ministers, officials and parliamentarians – including among the latter those who voted the Recommendation in Strasbourg, in order that they take the indispensable further steps of pressing the same issues and proposals in their national parliaments, possibly through the direct questioning of ministers, and also on their political party leaderships and media contacts.

My message to the protagonists of the International Court proposal is to go on pressing the issue in Strasbourg – in the first instance through the Parliamentary Assembly's Committee on the Environment, whose skilled and committed Secretariat is already well acquainted with Judge Postiglione and Dr. Vlavianos-Arvanitis and will always be ready to advise on the best mode and timing of further contacts with the Committee's chairmanship, bureau and rapporteurs.

One thing is sure. If ever the proposal is taken up in a Recommendation which comes on to the agenda of the Council of Europe's Committee of Ministers, the groundwork will have to have been done effectively, in advance, to ensure that, through their ambassadors, several governments express support not only for the proposal itself but also for specific lines of action for taking it further – including material commitments to some budget arrangements within a possible "partial agreement" formula, and a possible concerted request from all Council of Europe countries for specific line of action within the United Nations.

But I would not like to limit the purpose of presenting the text which follows simply to matters of procedure rather than substance. The immense merit of Rapporteur Sergiy Kurykin's initiative in the context of our meeting is to show that the case for the Court has more political relevance than ever.

Background summary

The military operations conducted by Nato against the Federal Republic of Yugoslavia during the 1999 Kosovo crisis caused serious damage to the country's natural environment. The damage extended to several other countries of south-east Europe.

Efforts by Nato air forces to destroy industrial sites and infrastructure caused dangerous substances to pollute the air, water and soil. These substances will have a lasting impact on the health and quality of life of the populations of the countries concerned. In particular, the use of ammunition containing depleted uranium is likely to increase the incidence of cancer and congenital disease among the inhabitants of the areas affected, as well as among the members of the armed forces serving in these areas.

The Assembly is concerned at the inadequacy of the resources available to the countries of south-east Europe to address the environmental consequences of the Kosovo war and considers that economic and social reconstruction programmes in the region must take full account of the environmental dimension. The Assembly further concludes that international rules on environmental protection in the event of armed conflict should be strengthened, and proposes that a convention be drawn up to this end.

Draft recommendation

1. The Assembly notes with concern the serious environmental impact of military operations over the Federal Republic of Yugoslavia between 24 March and 5 June 1999, as documented, inter alia, by the United Nations:

- i. Air, river and underground transfer of pollutants have affected all of south-east Europe, particularly Albania, Bulgaria, Greece, Hungary, Romania, the Former Yugoslav Republic of Macedonia (FYROM) and Ukraine.
- ii. Effects on health and quality of life will be long-lasting, and future generations will likewise be affected, notably as a result of the targeting of industrial and storage sites containing substances hazardous to health and Nato's use of ordnance containing depleted uranium.
- iii. Direct and indirect damage has dramatically worsened the condition of the natural environment, which was already very poor.

2. States involved in these operations, and operations in Bosnia and Chechnya, disregarded the international legal rules – Articles 55 and 56 of Protocol I (1977) to the Geneva Conventions of 1949 – intended to limit environmental damage in armed conflict. In the Assembly's view these rules should be strengthened and enforced in order to prevent or at least lessen such violations of fundamental human rights in any future conflict.

3. Further to its Recommendation 1452 (2000) on the parliamentary contribution to the implementation of the Stability Pact for South-East Europe, the Assembly considers that:

- i. The means available to affected countries are inadequate to protect and rehabilitate the environment.
- ii. Those countries should be provided with special technical and financial assistance for emergency environmental rehabilitation measures and for monitoring the health and living conditions of their populations.
- iii. Rehabilitation of the environment should be included in programmes for economic, social and transport rebuilding and these programmes should adopt an integrated approach to socio-economic and long-term ecological issues, in keeping with acknowledged principles of sustainable development as set forth in the UN Declaration on Environment and Development of 14 June 1992. The Stability Pact for South-Eastern Europe should be enhanced by a special protocol for repairing the environmental damage caused by the conflict.
- iv. Non-governmental organisations are making important contributions, not least in terms of heightened public awareness; that the international community should give them greater support; and that the Stability Pact should also be used for this purpose.

4. The Assembly, accordingly, recommends that the Committee of Ministers:

- i. Initiate joint discussions with the OSCE on drawing up a convention, notably to ensure compliance with Articles 55 and 56 of Protocol I (1977) to the Geneva Conventions of 1949, on the prevention of environmental damage as a result of military force or crisis-defusing measures.
- ii. Consult with the European Union on drawing up a protocol to the Stability Pact for South-Eastern Europe to tackle the region's environmental problems.
- iii. Use its own resources to support non-governmental organisations in the region, including the Federal Republic of Yugoslavia, which are engaged in repairing environmental damage caused by military operations and in rehabilitating the natural environment.

Explanatory memorandum by the Rapporteur

Introduction

Aim and limits of the report

The aim of this report is to present – on the basis of data drawn from official sources and information supplied by non-governmental organisations 1 – an overview of the environmental impact of military operations in Yugoslavia from March to June 1999, to assess its severity in the region and to provide support for the recommendations on lessening the environmental impact and preventing environmental damage in future. The report does not set out to assess political, moral or economic impacts of the military operations, which the Council of Europe Parliamentary Assembly has already considered.

Environmental safety

In modern times, environmental security has become one of the major factors in social development models. A kind of "environmental imperative" is developing that requires a stable balance to be struck between political expediency, economic necessity and environmental protection in approaches to global and regional problems. The supranationality of natural resources and technology's growing environmental impacts compel us

to develop and enforce international legal rules for the prevention of activities incompatible with strict environmental standards.

Environmental law and human rights

In recent years, environmental law has developed appreciably as an interdisciplinary field with a set of legal standards governing social relations insofar as protection and rational use of natural resources are concerned. The constitutions of many European countries establish environmental human rights, chief among them the right to a healthy environment; the law in these countries lays down penalties for environmental offences.

Environmental aspects of settlement of regional conflict

As the environmental crisis deepens, international environmental activity develops and environmental law machinery is set up, so environmental aspects of regional and local conflicts are attracting more attention. Political or economic crises can worsen environmental risks if official control of vital infrastructure is weakened or lost. However, direct environmental damage is less associated with instability itself than with attempts to restore the status quo by force. Recent examples include military interventions in the Persian Gulf – operations Desert Storm and Desert Fox – the Bosnian crisis and Chechnya.

Role of international organisations and of NGOs

Until recently, the issue of environmental damage in instability zones has mainly been raised by non-governmental organisations – the most active being Greenpeace and Green Cross International. The environmental consequences in the Balkans of the Kosovo crisis have been investigated by a Balkans Task Force set up by UNEP 2 and the UNCHS (Habitat) 3 and are being examined by the Council of Europe Parliamentary Assembly and the OSCE Parliamentary Assembly. This is evidence of a change in international organisations' attitude to the question.

Environmental damage caused by the war in Yugoslavia

Nato air raids on the FRY began on 24 March 1999 and went on for 78 days. The 1200 Nato military aircraft flew over 34,000 missions, carrying out around 2,300 strikes. The total amount of ordnance used by Nato is put at between 22,000 and 79,000 tonnes. Seventy-eight industrial sites and 42 energy installations were destroyed or damaged by bombs or missiles. 4

The bombing subjected ecosystems, surface water, groundwater, soil and air in the Balkans to unprecedented contamination involving over 100 toxic substances. The environmental impact in the Balkans of the Kosovo crisis breaks down into: direct and indirect damage caused by Nato ordnance; the effects of destruction of infrastructure and industrial installations; damage to the natural heritage; and, consequences of population displacement.

Ordnance used by the Nato forces

Depleted uranium

Nato officials have confirmed 5 the use of ordnance containing depleted uranium (U^{238}) 6 in operations in Yugoslavia. On account of its high density, 7 depleted uranium is used in armour-piercing shells, particularly the 30mm anti-tank shells fired by A-10 Thunderbolt assault jets – each shell contains 275g of depleted uranium. According to official information, some 31,000 warheads were used, with a total load coming on for 10 tonnes of depleted uranium.

Uranium combustion in high-temperature explosions releases fine particles of uranium oxide. Uranium oxide severely affects the respiratory organs of people within 300m of the explosion, causing severe burns in mucous tissue and consequent malignant tumours. Besides its radioactive effects, uranium is a highly toxic element and a potent carcinogen and mutagen. Uranium oxide particles 0.5 to 5µm in diameter, which form after a shell explosion, are dispersed by winds and settle on soils and vegetation. These particles, if ingested by humans or animals in contaminated food or water, may cause health damage, including chromosome destruction and severe reproductive disorders.

It is impossible to recover particles of depleted uranium from the environment or to neutralise them. Biological accumulation of uranium can cause irreversible health damage to the population of affected areas. Depleted uranium is probably one of the causes of the so-called "Gulf-syndrome," which has affected many former American and British servicemen who took part in combat operations in the Persian Gulf in 1991. About 3,000 have died of cancer and many of the survivors have children with birth defects. Similar effects have been observed in the population of southern Iraq, with a sharp increase in birth defects, leukaemia and other cancers in children in the area. The same problems are seen in Bosnia and Herzegovina, where depleted-uranium shells were used in 1995.

As Yugoslavia suffered intensive bombing and missile strikes from March to May 1999 and extensive use was made of warheads containing depleted uranium, there is every reason to suppose that it will experience a steep increase in morbidity. It is very possible that depleted uranium was responsible for the eight-fold increase in radionuclide levels – which however did not exceed the maximum allowed concentration – found in Macedonia in May 1999.

Consequences of massive use of aviation

Between 24 March and 5 June 1999, Nato aircraft flew over 34,000 missions, totalling some 150,000 hours in the airspace of Yugoslavia and neighbouring regions. This concentration of warplanes over a relatively small area resulted in high levels of contaminants in the ambient air and in rainfall, including such fuel additives as ammonium perchlorate, polyvinyl chloride, lead stearate, polybutadine and polyethylene. 8 Jet exhaust gases contain nitrogen oxides (NO_x), which are ozone-depleting. Fuel discharge by Nato warplanes over neighbouring countries 9 must also be reckoned among the factors directly linked to NATO ordnance use. It should be noted that fuel for F16 and Mirage jet fighters, which were used in NATO air strikes, contains highly toxic hydroxides.

Destruction of infrastructure and industrial installations

Between 24 March and 5 June 1999, 78 industrial sites and 42 energy installations 10 in Yugoslavia were damaged by bombing or missile strikes. As a result of destruction and fires at industrial facilities, there was severe contamination of air, water and soils by hazardous substances, including dioxins, toxic sulphur and nitrogen compounds in low degrees of oxidation. The contamination was registered not only in Yugoslavia but in the neighbouring countries as well.

The air strikes destroyed over 20 chemical and petrochemical installations, accounting for around 70% of Yugoslavia's oil-processing capacity. The installations included large plants such as the Milan Blagojevic chemical plant in Lucani, oil depots belonging to Jugopetrol in Smederevo, Pristina and Sombor, to Beopetrol in Belgrade, Kraljevo and Pristina and to Naftagas in Sombor, an oil refinery and chemical plant in Pancevo 11 and a petrochemical plant in Novi Sad.

Water contamination

The repeated, intensive and destructive air attacks on the Pancevo complex caused a risk of explosion of tanks containing toxic substances. An explosion would have released huge quantities of toxins, causing widespread air contamination and heavy human casualties. To avoid this, the operators of the facility had to discharge large volumes of toxic solutions into the Danube, including 1,400 tonnes of ethylene dichloride, 800 tonnes of 33% hydrogen chloride solution, 3,000 tonnes of lye, 1,000 tonnes of sodium hydroxide and an unspecified amount of mercury. The plant routinely stocks around 100 tonnes of mercury for use in its technology. Bombing of other facilities resulted in discharges of about 200 tonnes of ammonia (NH_3) into the Danube.

Bombing of the Zastava car factory caused discharge of several tonnes of pyralene into the Velika Morava river. Pyralene is a potent carcinogen that may be dangerous even in very low concentrations. The Velika Morava is one of the main tributaries of the Danube – the source of drinking water for more than 10 million people in several countries. Toxic discharges included releases of transformer oil as a result of damage to transformer stations in attacks on the power supplies of industrial facilities. In particular, transformer oil contains polychlorinated biphenyls (PCBs). One litre of PCB may poison up to 1 million litres of water. Destruction of the transformer substation in Belgrade caused a spill of 150 tonnes of transformer oil which reached the Sava river via canals.

In late April 1999, Romanian environmental authorities registered concentrations of heavy metals in the Danube which were twice the permitted level and which included zinc concentrations more than twenty times the permitted level. Inevitable biological accumulation of these metals makes river fish hazardous to human health. A temporary ban on fishing, such as the Yugoslav authorities introduced after the bombing of Pancevo, does not solve the problem because toxic substances precipitate and accumulate in bottom deposits, continuing to affect aquatic flora and fauna. In addition, toxic contaminants can be activated by external physical or chemical factors.

In the Danube area of Ukraine, from March to July 1999, ambient levels of formaldehyde and phenols were found to be 2 to 4 times the permitted maximal. In the city of Novi Sad, air strikes resulted in massive oil discharges which contaminated the Danube. The oil slick – 15km long and up to 400m wide – was observed on the river for two weeks in April, between kilometre 1,255 and kilometre 1,052. In May 1999, oil patches were observed along the whole of the river between Vidin and Ruse, Bulgaria, as well as downstream, near Reny, Ukraine. Near Bor and Mojcovac, bombing destroyed the dams of storage ponds for liquid industrial waste. The waste releases caused contamination of soil, surface water and groundwater. Serbia has groundwater resources of European importance and contamination of them might have very adverse impacts far from Yugoslavia. The problem is worsened by the fact that groundwater is much less self-cleaning than river water.

Air contamination

The air attacks on the petrochemical facilities at Pancevo caused critical levels of air pollution in adjacent areas. 12 Ambient levels of vinyl chloride monomers were 10,600 times the environmentally acceptable level, ambient levels of soot, sulphur dioxide (SO_2) and chlorocarbons 4 to 8 times. If they burn, vinyl chloride monomers form highly toxic gases, including phosgene and chlorine (Cl_2). At Pancevo and other areas affected by air strikes, burning oil, grease and synthetic construction materials generated temperatures of up to 1200°C that caused large releases of pyrotoxins. 13

Toxic substances released into the air, in particular highly toxic dioxins, may be wind-carried huge distances. For example, air concentrations of dioxins in northern Greece were 10 times over environmentally acceptable levels – maximum allowed concentrations – in April 1999 and 15 times over in May 1999. 14

In the period from April 18 to April 26 1999, maximum allowed concentrations of sulphur dioxide, nitrogen oxides and ammonia in the air were recorded in south-west Romania, in Timis County. 15 On April 20 1999, Romanian border guards had poisoning symptoms and respiratory difficulties due to high sulphur dioxide and ammonia levels in the air.

Between May 12 and June 1 1999, acid rain fell in Romania – in Cara Severin County, near Berliste (pH 5.4) and Gradinari (pH 4.7), in Timis County (pH 5.1) and in Arad County (pH 5.7). 16 This coincided with the air strikes at industrial facilities in Yugoslavia, and prevailing winds and wind strengths at the time confirm a direct link between the acid rain and the attacks.

The national environmental monitoring service in Bulgaria recorded high air levels of hydrogen sulphide during the conflict – 3-4 times the maximum allowed concentration (MAC) – ammonia – 2-3 times the MAC – and phenol – twice the MAC. 17 As satellite observations confirm, huge amounts of nitrogen oxides, sulphur dioxide and carbon monoxide released into the atmosphere by air attacks on industrial facilities have depleted the stratosphere ozone layer over Europe. 18

Direct damage to protected areas, forests, landscapes and soils

Until recent events Yugoslavia was relatively unpolluted. Up to 4% of the country – 400,000 hectares – is protected areas or nature reserves – there are 1,800 such protected zones – containing rare plant and animal species. 19 Bombing raids and missile strikes affected not less than 13 national parks and nature reserves, including such well known ones as Taga, which is on the UNESCO Global Heritage List, Kopaonik, Fruska Gora, Sarplanina and Vrsacke Planiny.

According to experts, the explosion of a 240kg bomb creates a crater 4m deep and up to 50 m² in area. 20 Such craters are visible in aerial photos taken after the cessation of military operations in nature reserves affected by bombardment, such as Fruska Gora, etc. Restoration of soil fertility and natural biochemical circles in the areas struck might take several thousand years: formation of 2cm of fertile soil takes more than 100 years in natural circumstances. Destruction of fertile upper layers of soil in a bomb crater area means destruction of associated flora and fauna.

Protected areas in Yugoslavia were of prime importance for biological diversity in Europe. It is impossible to assess damage to them, even approximately. Experts fear that the three-month military campaign and associated noise, pollution and destruction have disrupted the natural migration routes of wild birds and animals, directly affecting their reproduction – important migration routes to south-east Europe cross Yugoslavia. Not less than 250 hectares of forest were destroyed by fires. Several thousand hectares of arable land has become unfit for agricultural use on account of contamination or physical destruction. Near the Romania-Yugoslavia border, in the area adjacent to the conflict zone, soil concentrations of heavy metals are 50 times higher. This contamination is directly linked to fallout of wind-borne and cloud-borne pollutants from destroyed industrial facilities in Yugoslavia.

In border areas of Bulgaria, high soil concentrations of lead, copper and cadmium have been found – 3, 1,400 and 30 times higher respectively than average values recorded over a period of many years. 21

Environmental consequences of population displacement

The Kosovo crisis triggered an unprecedented flight of refugees, mainly to Albania and FYROM, neither of which had the resources or infrastructure to cope with hundreds of thousands of fugitives. Many refugee camps were set up in protected areas [22] or on farmland without any consultation with the local authorities. All the refugee camps – especially tent camps – suffered from inadequate or non-existent sewerage, unauthorised rubbish dumps [23] and felling of trees to obtain wood for cooking and heating.

In the majority of cases, discharges of household wastewater and infiltration of liquids from waste dumps resulted in contamination of groundwater aquifers. Large amounts of wastewater and household waste were discharged into rivers and other surface water bodies. Action by local authorities and international relief organisations achieved only limited control of the situation.

Problems of damage repair

Given the intensity, diversity and nature of environmental impact and the impossibility of restoring the environment to its pre-war state on account of the long-term effects of damage, especially chemical damage, it is not realistic to hope to remove the conflict's environmental consequences in Yugoslavia. We can only seek to contain and lessen the direct and indirect environmental damage .

Disposal of debris from destroyed buildings, bridges, etc, poses a major problem. Available technologies make it possible to recycle up to 80% of it, though processing will inevitably involve hazardous discharges into air and water. For the other 20%, burial is the only option. Accumulation of rubbish and household waste is becoming a serious environmental problem, many months after the air strikes and the deployment of the

peacekeeping force in Kosovo.

The scale and long-term nature of the environmental damage necessitate special measures, with monitoring programmes and environmental rehabilitation programmes both in Yugoslavia and neighbouring countries. This will involve considerable unforeseen expenditure. 24 Albania and FYROM do not have the equipment and institutional capability to carry out long-term monitoring and implement the measures needed to localise the consequences of the conflict. Romania also faces some organisational, logistical and financial difficulties. Unfortunately, environmental problems are not a priority in plans for restoration action in Yugoslavia and programmes of international technical and financial aid to the country. The approach is very similar to the restoration approach used in Bosnia – an indication that international organisations and national governments underestimate the environmental implications of military conflicts.

For objective reasons the authorities in Yugoslavia cannot, on their own, carry out the necessary measures. The situation is bound to affect Yugoslavia's environmental non-governmental organisations. Like other "third sector" organisations in south-eastern Europe, these NGOs required external assistance even in more favourable circumstances. The shift in donor organisations' and agencies' priorities towards assistance for rebuilding industrial and social infrastructure is liable to greatly reduce the technical and financial resources available to NGOs. Because of the radical change in operating conditions, many non-governmental environmental programmes have been abandoned. The scale of environmental contamination and the task of alleviating the effects of military operations far exceed NGOs' capacities and their traditional structure and working methods. At the same time, it is very important to avoid impairment or collapse of Yugoslavia's present environmental NGOs, which have been fairly active in recent years. Their environmental work is important in itself, but NGOs also have wider importance, as key actors in civil society and so in the general democratic process. NGO effectiveness in post-totalitarian reorganisation has been demonstrated many times in former communist countries.

Health monitoring in regions affected by the adverse factors we have described requires special attention, specialised equipment, organisation and additional funding. Unfortunately, monitoring, treatment and prevention in Yugoslavia are a major problem because of the many health care facilities destroyed by military action.

Conclusions

A comprehensive environmental impact assessment of the Nato military action in the region is still in progress. Some data are contradictory and require substantiation or adjustment. However, we now have enough firm evidence to record some general findings and draw broad conclusions about the environmental impact in south-east Europe of military operations in the FRY.

The attacks on industrial facilities in Yugoslavia, aimed at depriving the government of its economic base, destroyed vital infrastructure and caused severe – in some cases irreversible – environmental damage. This will have serious and lasting effects on people's lives in Yugoslavia, effects which the authorities do not have the resources to deal with. The environmental impact of the Kosovo crisis is transboundary: there have been environmental consequences in adjacent areas of neighbouring countries, and the Danube basin, transboundary waterways and groundwater have all been affected. The use of military force and special-purpose weaponry with lasting, non-containable effects has endangered both the present population and generations to come. Destruction of the petrochemical installations close to Belgrade – Pancevo is a suburb of Belgrade – directly threatened the lives and health of almost 2 million people. The military operations violated the rights of Yugoslav citizens and people in neighbouring countries, first and foremost the right to a healthy environment.

That the military action would have grave environmental consequences was highly predictable and the consequences were fairly evident right from the start of the air strikes, so the militarily inflicted environmental damage can be presumed to have been deliberate. There is therefore no avoiding the conclusion that the military operations violated the environmental-protection rule laid down in the First Additional Protocol to the Geneva Convention.²⁵ In particular, bombing environmentally hazardous installations is a flagrant breach of that protocol.²⁶ The military operations masterminded and conducted by Nato in Yugoslavia contravened Principle 24 of the 1992 Rio Declaration on Environment and Development,²⁷ as well as the spirit and letter of resolutions, conventions and declarations which conferences of the United Nations and other international organisations have adopted over several decades²⁸ in order to develop international co-operation in questions of environmental protection and liability for damage.

At the same time, the conflict has revealed the inability of contemporary international law to prevent similar occurrences in the future. The Kosovo crisis has demonstrated the urgent need for a special European convention on prevention of environmental damage in military action and on measures to defuse emergencies. The convention would develop and supplement the provisions of existing international legal instruments. Such a convention would be in accord with the spirit of the Council of Europe's high humanitarian objectives. Its relevance was brought home by the recent military operations in Chechnya, which also caused environmental damage due to the destruction of oil refineries and oil storage installations.

Damage evaluation and environmental rehabilitation in the region should take priority in the design and implementation of programmes to assist reconstruction in south-east Europe. There is an obvious need to provide all possible international assistance to environmental non-governmental organisations in Yugoslavia so as to help them clarify their role in post-war restoration work.

Quite apart from the question of the appropriateness of tackling the Kosovo problem militarily, it should be stressed that the use of military means to stabilise crisis situations must be selective and cautious if severe damage to the environment is to be avoided.

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2. United Nations Environment Programme
3. United Nations Centre for Human Settlements (Habitat)
4. See Literature cited, NN 1, 6
5. Letter by the Nato Secretary General to the UN Secretary General, 7 February 2000 (See Literature cited, No 7)
6. Depleted uranium is a heavy metal which is a by-product of uranium enrichment for military or civilian purposes. It is 40% less radioactive than a natural mix of uranium isotopes; its half-life is 10 million years.
7. times greater than that of lead
8. See Literature cited, NN 2, 3
9. For example, a Nato bomber jettisoned 42 tonnes of fuel onto a Hungarian nature reserve
10. See Literature cited, NN 3, 6
11. According to the United Nations working party, total damage at Pancevo alone as a result of the air strikes could come to USD 1 billion.
12. A 15km cloud of smoke was visible above Pancevo for ten days after the attack (See Literature cited, No 2)
13. See Literature cited, No 5
14. See Literature cited, No 2
15. See Literature cited, No 2
16. Idem
17. Idem
18. See Literature cited, No 3
19. See Literature cited, NN 2, 6
20. Idem
21. See Literature cited, No 2
22. For example, in Rrushkull district (Albania), a refugee camp took up 14.5ha of a game reserve.
23. On average the refugees produced between 4 and 10kg of waste per day per person, a large proportion of it plastic food wrappings and metal cans (which are not biodegradable). (See Literature cited, No 2)
24. For example, the additional cost of environmental monitoring in several border counties of Romania is put at about USD1 million. According to estimates of the FYROM Ministry for the Environment the additional monthly average cost of monitoring in the year after termination of combat operations will be not less than DM32,000.(See Literature cited, No 2)
25. "Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population" (Article 55.1).
26. "Installations and facilities containing dangerous forces ... must not be made the object of attack (even where these objects are military objectives), if such attack may cause the release of dangerous forces ... and consequent severe losses among the civilian population" (Article 56.1).
27. "Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the

environment in times of armed conflict and co-operate in its further development, as necessary" (Principle 24)

28. "States have, in accordance with the Charter of the United Nations and the principles of Environmental law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction." (Principle 21. The Stockholm Declaration on the Human Environment 16.06.1972) (See also Literature cited, NN 7-12)

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8. The Stockholm Declaration on the Human Environment, 16 June 1972 (<http://www.unesco.org>)
9. The UN General Assembly resolution on the "Historic Responsibility of States for the protection of the Nature of the Earth for the Benefit of Present and Future Generations"
10. World Charter for Nature, 1982
11. Convention on the Prohibition of Military or Other Hostile Use of Environment Modification Techniques, 1977
12. Convention concerning the Protection of the World Cultural and Natural Heritage, 21 November 1972

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