

United Nations Economic Commission for Europe

TECHNICAL COOPERATION: SUCCESS STORIES



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NOTE

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United Nations Publication

Dear Reader,

The Economic Commission for Europe has a world wide reputation for its normative work. Legal instruments (conventions and their protocols, treaties and agreements), norms, standards and regulations in various areas (trade, transport, environment, energy, statistics, etc.) developed by the Commission are often used far beyond the region and have become global public goods. However, very few know about its technical cooperation work and its profound impact on the lives of people.

This publication is an attempt to bridge this gap. It aims to show how relatively small interventions can make a significant difference in human lives, if there is a clear objective, strong commitment and genuine partnership. Another purpose of the publication is to inspire all of us, including the staff of the Secretariat and the member states of the Commission to do more: all these stories can be replicated, including in different contexts and/or at a larger scale. This publication also pursues the goal of documenting best practices and, wherever possible, draws on the findings of external evaluations.

All success stories follow the same structure: the challenge faced, the actions taken, the results achieved, and the future plans. The last is particularly important in order to demonstrate the continuity of the development process and its long-term benefits. In short, every success story is about 'problems' and 'solutions', 'before' and 'after', 'now' and 'then'.

Above all, all these stories are about 'us', 'we, the people' and 'we for the people'. These are stories told by people and for people. Listen to their stories. Hear their voices.

Jan Kubiš

A handwritten signature in blue ink that reads "J. Kubiš". The signature is written in a cursive, slightly stylized font.

Executive Secretary

Money does grow on trees

(by Mr. Hans Jansen)

For the past thirteen years, a remarkable story of enterprise has been unfolding across the vast forest wildernesses of the Russian Federation.

At the centre of the story is a long-running UNECE-directed project that has seen the successful introduction of modern technology aimed at bringing unused forest materials into efficient economic use as biomass. The use of biomass on a large scale can contribute significantly to reduction of carbon dioxide worldwide. Forest covers giant swathes of the Russian Federation, and biomass production from forest waste can make a major contribution to world targets for carbon dioxide reduction.

At the same time, the project is helping this huge country utilize one of its major natural resources. Effectively, the project has introduced a new commodity to the area that uses waste forest material to produce a compact, combustible fuel, which can be used efficiently in power stations to make electricity and, being light, is easy to transport over long distances at low cost. Export of the biomass extends this benefit to users in other countries and also generates significant overseas earnings. Is there perhaps a touch of the Midas myth in this scheme for making money out of “rubbish”, by adding value to something that would otherwise be largely left to decompose on the forest floor?

Reducing world greenhouse gas emissions is recognized as perhaps *the* central task for climate change mitigation. An immediate and obvious intervention is for major energy producers using fossil fuels such as coal and oil to replace these finite resources with renewable energy such as biomass. According to the Global Forest Resources Assessment (2010), the total biomass (above-ground and below-ground) contained in the world’s forests amounted to 600 gigatonnes, or about 149 tonnes per hectare.

Even though it cannot be classified as a “traditional” geographically defined region such as North America



or Central Asia, the UNECE area encompasses several contiguous regions and countries, including many of the most heavily populated and industrialised nations and so its environmental and climatic problems have, arguably, a disproportionate effect. UNECE sees sustainable biomass as part of a five-pronged approach to climate change in the area which includes regulating vehicles, increasing efficiency in energy production, improving the energy-efficiency of housing and sustainable forestry.

The UNECE region contains 40 per cent of the world’s natural gas reserves and 60 per cent of its coal reserves. With these extensive fossil fuel reserves, and a high level of industrial development, it is not surprising that the region is a major source of greenhouse gases. The many treaty targets under UNFCCC and UNECE conventions aimed at “greening” the coal-to-electricity chain can be partly met by increasing energy efficiency, but even before this the contribution that biomass can make to fuel efficiencies, carbon capture and electricity generation is enormous.

The Global Forest Resources Assessment (2010) estimated that approximately 41 per cent of world's forests are in the UNECE region. Unlike coal mines, forests contribute to carbon capture. As an illustration, the forests in the EU-27 area permanently sequester 140 million tons of carbon a year. Put another way, the annual increase of carbon in EU-27¹ forests is equivalent to 8.6 per cent of greenhouse gas emissions in the EU itself. This is a carbon saving statistic that cannot fail to impress policy makers.

With its enormous forest and agricultural resources, the role of the Russian Federation in the development of the biomass sector could have a major impact both on domestic use and the international trade of this commodity.

The Russian forest sector is the largest timber resource in the world. Forests make up 52 per cent of all Russia's territory and represent over 22 per cent of the global forest area. According to some estimates, Russian forests absorb 15 per cent of the world's carbon dioxide, and accounts for almost 40 per cent of the biomass carbon sink. The growing stock amounts to almost 82 billion cubic metres with annual increment exceeding 900 million cubic metres. Goskomstat, the Statistical Office of Russia, estimates the country's timber resources at 73,600 million cubic metres. Experts in the international Food and Agriculture Organization put the figure even higher at up to 89,100 million cubic metres

Since 1998, UNECE has been directing a major cross-sectoral project for enterprises in the biomass sector in the region. The project aims to strengthen the local use of biomass for heat and electricity production as well as sustainable biomass supply from selected countries in the UNECE region to energy producers in the EU. The focus is on use of agro- and wood residues as an important alternative to the use of crops specially grown for fuel. The project also seeks to improve the logistical chain of biomass trade from producer to end-user through improved inland transportation, port and trade logistics, and customs cooperation for imports and exports of biomass. The project also aims to facilitate the exchange of good practice with the private sector and explore cross-sectoral approaches that take into account environment, energy, trade and transport issues.

Key elements of the project are:

- Sustainable development of biomass from agro- and wood residues for heat and electricity production.
- Exchange of best practice at enterprise level.
- Cross-sectoral approach involving enterprise development, environment, energy, trade and transport issues.
- Certification of biomass.
- Training and education programmes.
- Biomass trade and port logistics.

The UNECE project 'Improved Trade Logistics for the Sustainable Use of Biomass in Northwest Russia.' established an extensive network of private and public partners, with numerous practical results. The project was the first to introduce the biomass trade in the Northwest Federal Okrug. (To give a better idea of the scale, the Northwest Federal District is one of the eight federal districts of Russia, occupying an area of

¹ The area covered by the European Environmental Agency comprising Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. Notably, it does not include the Russian Federation or contiguous CIS states.

1,677,900 square kilometers in the northern part of European Russia. In 2002, 82.3 per cent of its population of almost 14 million was urban.) The first wood pellet plant became operational in 2001. Since then, more than a hundred pellet factories are estimated to be operational in the Russian Federation. Thus an entire new industry was established.

As a direct result of the project, the “Confederation of Associations, Enterprises and Organisations of the Forestry Complex of the Northwest” was established. This has been an important step in the coordinated development of the forest sector as a whole, delivering the following results:

- Awareness building and regular exchange of information on best practice for the development of the sustainable use of biomass. This includes the establishing of a regular conference and workshop schedule on biomass in St. Petersburg and elsewhere, and the production of scientific publications by Russian academic institutions.
- St. Petersburg River Port was upgraded by Port of Rotterdam authorities from a bulk terminal to a container terminal. As a result, container handling for other goods has increased significantly.
- Baltic Customs in the Russian Federation have enhanced the cooperation with Dutch customs. The result has been simplified customs procedures on both sides, including advanced risk analysis procedures.

The Northwest Russia project results persuaded the Federal Government to support a new project for the development of sustainable biomass trade and export opportunities for selected regions of the Russian Federation. Since the start in September 2008, many regions, including Krasnodar *krai*, the Republic of Tatarstan, and Leningrad *oblast*, have asked for support from the project in developing their biomass sector. The main focus is on the development of Regional Biomass Action Plans in the participating regions.

A Regional Biomass Action Plan aims at integrating the regional biomass sector with the forestry, woodworking and agricultural sectors, the electricity and municipal heating sector, and the waste and recycling sector. It helps the private sector and regional government to have a coordinated approach and can be implemented in any region of the Russian Federation. The project develops innovative approaches in producing renewable energy. For instance, it promotes conversion of boiler houses for municipal district heating to the use of biomass.

Most Russian district heating utilities were built between 20 and 50 years ago and have not been modernized since. These utilities are inefficient and account for 25 per cent of Russia’s total energy consumption. About half of the Russian population live in areas that are remote from gas or oil transmission pipelines. Ironically, these regions usually have excellent wood resources. The use of wood waste for district heating is innovative and makes good economic sense. It therefore offers a renewable alternative which makes a positive environmental contribution by reducing greenhouse gas emissions, and which is economically sound since it does not require costly new infrastructure. The project has focused on a coordinated approach to this subject, including wood-supply studies.

The technology of co-firing of biomass in electricity plants was introduced in Russia as part of the project. Co-firing of woody biomass in a coal plant for electricity production is a proven technology in other countries, and has immediate results for carbon dioxide reduction. This could be a pilot case for Russia and would make a very significant contribution to meeting the federal government targets for use of renewable energy.

Many regions of the Russian Federation have potential for the development of various sources of renewable energy. In the Krasnodar region, for example an innovative approach using windbreaks as a source of biomass

is being developed. Windbreaks are rows of trees that protect agricultural fields from the wind and protect soil from erosion. The Republic of Tatarstan has a particular interest in developing technology for the conversion of municipal waste to biomass; this is further explored in the Biomass Action Plan for that region.

The expansion of the project to introduce algae biomass production is particularly exciting. Algae have extensive potential for biofuel, bioremediation and pharmaceutical applications and algae production on an industrial scale is attracting worldwide interest and investment. Using algae for biomass is both scientifically innovative and considerably enlarges the scope of the project. In the Russian Federation, where the technology is still unknown, it increases the number of regions that can be involved and gives a new impetus for regional governments to work on capacity-building, cooperate with the private sector and make further investments in the development of the biomass sector.

Algae are amongst the richest natural sources of nutrients and have exceptional ability to absorb carbon dioxide emissions and purify water. This makes it possible to produce algae biomass while concurrently contributing to solving urgent environmental problems.

There are high socioeconomic benefits from producing energy using this innovative biomass source. Apart from the use of algae biomass for electricity and heat production as well as for the extraction of biofuels, living algae can be used for the bioremediation of waste water and sewage in a range of social and industrial situations such as pulp and paper mills, and in the treatment of municipal waste.

Algae are widely used in the pharmaceutical industry, including in the production of nutritional supplements, and this sector has high potential in Russia. The UNECE project is helping identify the best opportunities for algae biomass production as part of its work to introduce Regional Biomass Action Plans in every region of the Russian Federation.



Relevance

The project helps to meet the targets of the Federal Government of the Russian Federation on the use of renewable energy. The Executive Directive of 8 January 2009, recommends that the regional (and municipal) governments incorporate measures into their development programmes to increase the target share for renewable energy sources from the present under 1 per cent to 4.5 per cent by 2020. The project supports the regions to meet these ambitious targets through the developments of Regional Biomass Action Plans and other capacity-building activities.

The project is firmly in line with the United Nations Millennium Development Goals and the Kyoto Protocol, which commits industrialized countries to limit in or reducing their greenhouse gas emissions to at least 5 per cent below 1990 levels. Countries can achieve the reduction of carbon dioxide emissions by using sustainable energies, in particular biomass, to replace fossil fuels. Key goals in the context of the UNECE project are Goal 1: “Eradicate extreme poverty and hunger” and Goal 7: “Ensure environmental stability”.

The development of the biomass sector could have a considerable impact both on domestic use for energy production and on international trade of this commodity. The project helps directly with job creation in the forest sector in rural and remote areas.

Efficiency

The efficiency of the project is demonstrated by a range of tangible outputs that are being delivered within a limited budget. Russia has the potential to reduce its carbon dioxide emissions by 793 million tonnes per year by reducing energy intensity. This equates to sales of carbon credits worth roughly US\$ 10 billion, while helping Russia maintain its international standing as part of the global community's solution to climate change.

Sustainability

The sustainability of the project has been proven. Most of the activities initiated by the project have continued and expanded and are still being implemented. Stakeholder organizations that were established by the project are also still operational, such as the "Confederation of Associations, Enterprises and Organizations of the Forestry Complex of the Northwest".

The project introduced the concept of biomass production in Russia. The first wood pellet plant became operational in 2001; since then an estimated 100 pellet factories have come into operation throughout Russia.

Biomass projects have the lowest technical potential of any renewable energy source (50 million tonnes of coal equivalent in 2000), but their economic potential is higher than wind and solar energy combined. The target of achieving full energy efficiency potential may still be a long way off, but renewable forest biomass, together with the promise of new bio-technologies such as algae, has already assured biomass of significant and sustainable role.

Replicability

The project has extensive experience in replicating its activities in different regions of the Russian Federation, with strong emphasis on the specific needs of each region.

Several countries, including Ukraine, Belarus, Malaysia and Indonesia have asked for implementation of the project and work plans have been developed based on the specific needs of these countries.

Seeds of Iron

(by Mr. Serguei Malanichev)

Potatoes are hardly the stuff of revolutions, but in the nineteenth century Friedrich Engels declared the potato the equal of iron for its “historically revolutionary role”. More recently, the United Nations declared 2008 the International Year of the Potato. The UN hopes that greater world awareness of potatoes will contribute to its Millennium Development Goals, helping to alleviate poverty, improve food security and promote economic development.

Food shortages are not a new threat. Crop failures throughout history, such as the great potato blight in Ireland, have caused millions to die of starvation. As global population increases, so does the problem of food security. With advances in genetic engineering, scientists were confident until recently that food production could be increased to keep pace with predicted population growth. But fear of genetically modified foods, added to potential hyper-exponential population growth, coupled with the rise in global temperatures, threatens a new Malthusian crisis.²

In Europe, after World War II, food shortages were rife and severe. By resolution 46 of 11 December 1946, the UN General Assembly considered the “Economic reconstruction of devastated areas” and in 1947 established the UN Economic Commission for Europe (UNECE) to “encourage economic cooperation” among its members. These now number 56 European, North American and Central Asian states. More than 70 international professional and non-governmental organisations take part in UNECE activities.

As part of its remit to facilitate international trade, UNECE develops global agricultural quality standards. The Working Party on Agricultural Quality Standards and its specialized sections cover a wide spectrum of agricultural products: fresh fruit and vegetables, dry and dried produce, seed potatoes, meat, cut flowers, eggs and egg products. The standards encourage high-quality production, improve profitability and protect consumer interests. UNECE standards are used internationally by Governments, producers, traders, importers, exporters and international organizations. The Standard for Seed Potatoes is one of the about hundred standards drawn up by UNECE.³



To appreciate the importance of the success of UNECE workshops to promote its Standard for Seed Potatoes, such as those held in Kislovodsk, Cairo and Bandung in 2008, 2009 and 2010 respectively, it is necessary to have a few insights into the staggering complexity of the not-so-humble potato.

The potato is the world’s fourth-most-important food crop, after maize, wheat and rice. It provides more calories, more quickly, using less land⁴ and in a wider range of climates than any other plant. Even at times

² ‘I think I may fairly make two postulata. First, that food is necessary to the existence of man. Secondly, that the passion between the sexes is necessary and will remain nearly in its present state. These two laws, ever since we have had any knowledge of mankind, appear to have been fixed laws of our nature, and, as we have not hitherto seen any alteration in them, we have no right to conclude that they will ever cease to be what they now are . . . the power of population is indefinitely greater than the power in the earth to produce subsistence for man.’ Thomas Malthus: An Essay on the Principle of Population, (1798).

³ Can be used for free and downloaded from: <http://www.unece.org/trade/agr/welcomeE.html>

⁴ Harvested area: Potatoes 8.7 million hectares, producing 137 million tons, yield 15.7 tons/hectare. (Wheat: 214 million ha; rice: 54 million ha; maize: 140 million ha.). Human consumption is 85% of total production for rice, compared with 72% for wheat and 19% for maize.

when and where most other crops failed, potatoes could still typically be relied upon to contribute adequately to food supplies.⁵

The potato has huge economic importance. Potatoes yield from two to four times more calories per acre than grain. The annual diet of an average global citizen in the first decade of the twenty-first century included about 33 kilogrammes of potato, compared with 67 kilogrammes of wheat (2003), or 58 kilogrammes of rice. The potato is an essential crop in Europe. It was introduced into Russia after disastrous grain failures in 1838 and 1839. Eastern and Central Europe have the highest per capita production in the world: Belarus has the highest consumption, with each Belorussian consuming 381 kilogrammes a year or over 1 kilogramme per person per day in 2005. Southern and eastern Asia has seen the most rapid expansion in production over the past few decades: China, which has one-fifth of the world's population, with only 6 per cent of its cultivated land, is now the world's largest potato-producing country. Nearly a third of the world's potatoes are harvested in China and India.⁶

Genetic testing of the wide variety of cultivars and wild species has proved that all potatoes in the world are descended from a single species in the *Solanum brevicaule* complex from an area of present-day southern Peru, where they were domesticated seven to ten thousand years ago. After centuries of selective breeding, there are now about 5000 cultivated potato varieties worldwide. Three thousand of them are found in the Andes alone, mainly in Peru, Bolivia, Ecuador, Chile and Colombia, where over a hundred cultivars might be found in a single valley and a dozen or more might be maintained by a single household of farmers. All these varieties belong to eight (or nine) species, depending on which taxonomic school is employed.

From an early split in genetic heritage, the potato acquired enormous adaptability to huge variations in climate and daylight, which confers exceptional range and flexibility in its cultivation. Of the two major subspecies of *Solanum tuberosum*, subspecies *andigena*, or Andean, adapted to the short-day conditions prevalent in the mountainous equatorial and tropical regions where it originated, while subspecies *tuberosum*, or Chilean, adapted to the long-day conditions of the higher latitude region of southern Chile.⁷ A single variety from the Chiloé Archipelago left its germplasm on over 99% of the cultivated potatoes worldwide.

Due to this lack of genetic diversity, most naturally occurring species of the plant are vulnerable to disease.⁸ Apart from the 5000 cultivated varieties, there are about 200 wild species and subspecies, many of which have been cross-bred repeatedly with cultivated varieties to improve their resistances to pests and diseases by gene transfer from wild to cultivated potato. A wild potato species, *Solanum fendleri*, found as far north as Texas, is used in breeding for resistance to one of the species of nematode worm that attacks cultivated potatoes. Mexico is another important source of wild species that have been used extensively in modern breeding of the potato such as *Solanum demissum*, to confer resistance to the devastating late blight disease.

A related native species, *Solanum bulbocastanum*, has been used to genetically modify the potato in the laboratory to resist potato blight, although GM products have met heavy consumer resistance in Europe and the United States.

While increased potato production could be achieved by simply extending the production area and directly improving agricultural practices, only the use of quality-controlled seed potatoes can ultimately effect better

⁵ John Reader, *Propitious Esculent: The Potato in World History* (2008).

⁶ The world's ten top producers (in millions of metric tonnes) in 2007 were: China (72), Russia (36), India (26), Ukraine (19), USA (18), Germany (12), Poland (11), Belarus (8.5), Netherlands (7.2), France (6.3).

⁷ Genetic testing in 2005 showed that both these subspecies derive from a common ancestor from the area of southern Peru.

⁸ Potatoes are vulnerable to over 80 bacterial, viral, phytoplasmal and fungal diseases of which the most notorious is Late Blight (*Phytophthora infestans*). They are also susceptible to attack by several serious pests, including six groups of nematode worms causing rot, knot and stubby root. The colourful names – blackleg, brown rot and pink eye; smut, spot and scurf – belie the devastation and loss of value they can cause.

disease control, thereby helping to increase both yield and quality. In many countries, as quality seed production is still limited, such seed needs to be imported. To control the quality of seed and limit the ravages of diseases and pests, there is a need for an internationally harmonized standard for seed potatoes to be used in international trade. While regulation is a matter for governments, aimed at ensuring the compliance with the conditions and tolerances specified in national regulations, a functioning certification scheme is impossible without properly supported research institutes, and the full participation of both producers (farmers) and consumers.

Government action to protect and increase the range of varieties is important to protect advances in cross-breeding and extend the potato gene pool, whether by conventional or GM methods. However, the protection system should not impede (indeed, it should stimulate) private-sector commercial breeding of new varieties and the production of high-quality seed.

The United Nations standards are part of the wider framework for profitable production, international trade and consumer protection. UNECE is working to establish its Standard as a global reference for international trade by evolving internationally agreed quality requirements for seed potatoes and a harmonized certification scheme. Eighteen countries are known by UNECE to have their own national standards and 34 have national schemes of certification. The Standard must necessarily take into account the specific conditions and national practices in different parts of the world. The UNECE Standard was used as a basis for the marketing directives regulating the internal market of the EU. An increasing number of countries are also using the UNECE Specialized Section as a Forum for discussing seed potato topics of common interest and for agreeing on recommended practices of cultivation and certification of seed potatoes.

UNECE documentation lists sixteen databases of potato varieties: most list 'national' varieties only, but three databases are maintained listing all known varieties globally. The International Potato Center, based in Lima, Peru, holds the ISO⁹-accredited collection of potato germplasm. For any scheme of standards to work successfully with this degree of complexity, all potato varieties must be registered and catalogued for certification purposes. To be eligible for certification, seed potato producers need to be licensed and authorized. To achieve official certification, potatoes and seed must carry full documentation showing that they originate from pest-free areas, and exhibit no malformation, bruising, internal discolouration or mechanical defects. Seed potato shipments must conform to the Standard: packages are generally up to 1000 or 1500kg, but sometimes as little as 25kg (Cyprus). The seed tags must list the producer number, field identification codes, lot number, variety, country and area of production, category class and size, net weight, crop year and date of printing.

With a global role recognised by the other major regulatory and standardization bodies, UNECE is working to promote its Standard for Seed Potatoes in each of the areas covered by the five UN Economic Commissions. UNECE activities in each region aim to prompt these countries to harmonize their national standards with the UNECE Standard, to improve both seed production itself and seed certification infrastructure. In the past three years, UNECE organised a series of international workshops to promote the UNECE Standard for Seed Potatoes. Three regional workshops have been organized by the Specialized Section and the UNECE secretariat with the relevant ministries of the host country. The first, for the Russian Federation and other countries of the Commonwealth of Independent States (CIS) took place in Kislovodsk, Russian Federation, in September 2008; a second workshop, for the countries of Africa and the Middle East, was held in Cairo,

Egypt, in March 2009; the workshop in Bandung Indonesia in 2010 addressed the special problems of Asia. All three workshops illustrate very different scenarios and needs.

Kislovodsk

The workshop in Kislovodsk was organised in partnership with the Russian Federation Ministry of Agriculture and other government institutions and was hosted by the seed-potato-producing enterprise 'Meristime Cultures', one of the biggest producer of minitubers in the CIS region. The participants also visited the sponsors' fields and technical facilities where they could see for themselves how seed potato varieties were maintained, multiplied, graded, packed and certified.

The Russian Federation is the world's second biggest potato producer and one of the highest per capita consumers in the world. Kislovodsk is the ideal venue for the workshop because of the importance of potato cultivation in the region.

Kislovodsk lies at the foothills of the Caucasus on the same latitude as Boise, capital of Idaho, another famous potato-producing area. Founded as a military station, the city later became a fashionable spa exploiting the natural springs abundant in the area.

The Russian Federation is using the UNECE Standard to update its national seed potato certification scheme. The Ministry of Agriculture



has incorporated the main conclusions of the workshop into the national standard¹⁰ and a draft law on seed production. All seed potatoes being marketed to produce potatoes for consumption will have to be certified. There will be only one set of certification rules for seed potatoes, covering both those produced for the internal market and those for export; in addition, exported seed potatoes should comply with the requirements of importing countries. National rules are to be applied at the regional level, taking account of specific regional soil and climate conditions. Rules on tolerances, however, will be realistic, so as not to damage the interests of producers or consumers. The Russian Federation will keep its existing system of variety testing, and will register those varieties allowed for cultivation. The government was recommended to establish phytosanitary zones for cultivating quality seed as well as periodic targets for the percentage of the total acreage under potatoes planted with certified seed. Government aims to assist the private sector to create regional centres for production of quality seed potatoes while commercial producers should form associations to work more effectively with government, shouldering primary responsibility for consumers on a commercial basis. Finally, the Ministry was encouraged to carry out a pilot project with international support to modernize the infrastructure for certification of seed potatoes in one of the regions in Russia.¹¹

¹⁰ GOST P 53136-2008. „Seed potatoes. Technical conditions.“ Developed by Rossel'hozcentre of the Ministry of Agriculture and the Lorkh Research Institute for Potato Cultivation of the Russian Academy of Agricultural Sciences. Adopted in December 2008 by the Russian Agency for Technical Regulation.

¹¹ A pilot project has been started in the region of Voronezh, 500 km south of Moscow. This project is part of the long-term cooperation programme agreed upon between UNECE and the Swiss Federal Research Station Agroscope Changins-Wädenswil ACW (Agroscope ACW), the overall purpose of which is to modernize the system of seed potato cultivation, quality control and certification in the Russian Federation and other countries of the Commonwealth of Independent States.

Cairo

The workshop in Cairo was organized in partnership with the Central Administration for Seed Testing and Certification of the Ministry of Agriculture and Land Reclamation of Egypt and the Fédération Nationale des Producteurs de Plantes de Pommes de Terre de France. After the seventy participants¹² attended two days of presentations¹³ and discussions, they saw for themselves how seed potatoes were grown at the Shorouk farm in the desert area of Nubarya on the road between Cairo and Alexandria, and how early potatoes for export were packed and stored at the packing house of the Agrofood company in Nubarya city. The Cairo workshop's main aim was to promote and to encourage practical application of the UNECE Standard in twelve countries of Africa and the Middle East.¹⁴

Cairo has a unique position as a world city at the same time both intensely African and as one of the major centres of Middle Eastern life and culture. It can also claim to be at the heart of one of the longest continuously inhabited agricultural areas in the world. Though the 6,000 year-old tomb paintings and carvings show in great detail the cultivation of many other crops dating back to pharaonic times, many of which are still grown and consumed along the Nile, the potato, a 16th century introduction from the New World, is obviously and conspicuously absent.

However, potatoes are increasingly important to new consumption habits, especially in processed and diversified forms eaten by a growing urban population. With two, three or even four growing seasons possible annually in some areas¹⁵, it is also a crop of increasing commercial importance. The total area under cultivation with potatoes is 670,000 hectares, or 3.5 per cent of the world potato area. Production is 15 million metric tonnes which, at 4.6 per cent of the world potato production, demonstrates that average yield of 22 tonnes per hectare is 5 tonnes per hectare higher than world average. Consumption is only average at 33 kilogrammes per capita per year, though it is extremely variable within the area as a whole ranging from 50 kilogrammes in Turkey, closely followed by Syria, to less than 5 in Sudan. The main variety grown in eight of the countries is 'Spunta'.

There is a wide variation too across countries in Africa and the Middle East in cultivated area and volume of production, and in yields. Turkey leads in both, followed by Kenya and Egypt in the area planted, and by Egypt and South Africa in total production. Yields ranging from a high of 40 tons per hectare in South Africa to a low of 10 in Kenya, illustrate well the observation that there is a considerable gap between the actual and potential yield for the region. While this may be partly dependent on the frequency and length of growing seasons, as well as on the balance between rainfall and a variety of irrigation methods, one of the conditions for increasing profitability is to improve the yield and availability of quality seed at an affordable price. There is a seed production system, including certification, functioning in nine countries, although most countries still import a significant quantity of seed potatoes. South Africa imports only limited quantities of minitubers and relies on in-vitro plants to start its own multiplication schemes, and Kenya does not import either seeds or starting material. Egypt is an encouraging example of cooperation with EU countries in providing excellent results in improving the quality of locally produced seed potatoes. While quality assurance can be done either by the government or by the suppliers, the most sustainable results will be when the local industry develops an indigenous system of certification for ensuring high quality of seed potatoes. In this endeavour, the UNECE Standard for Seed Potatoes is the most recognized standard in the world and an international reference.

¹² Government officials, growers, traders and researchers from the following countries attended the meeting: Algeria, Belgium, Canada, Czech Republic, Egypt, France, Germany, Jordan, Kenya, Lebanon, Morocco, Netherlands, Saudi Arabia, South Africa, Sudan, Syrian Arab Republic, Switzerland, Tunisia, Turkey the United Kingdom of Great Britain and Northern Ireland and the United States of America.

¹³ Presentations given at the workshop can be found on the UNECE website at: www.unece.org/trade/agr/meetings/ge.06/2009-in-session.htm.

¹⁴ Morocco, Algeria, Tunisia, Egypt, Sudan, Kenya, South Africa, Turkey, Syria, Lebanon, Jordan and Saudi Arabia.

¹⁵ 4 - Morocco, Tunisia; 3 - Algeria, Egypt, Lebanon, Syria; 2 - most of the rest except Sudan

Bandung

The third regional event, a workshop in Bandung, West Java, Indonesia, in October 2010 was aimed at promoting the use of the UNECE Standard for Seed Potatoes as an international reference and encouraging its practical application in countries of Asia, where there is a very different scenario for potato production and consumption.

Rice is overwhelmingly the most important basic food in Asia. Yet China is the world leader in potato production, surpassing Russia in 2007 by more than 35 million metric tonnes. Today, Indonesia is the biggest potato producer in South-East Asia. Between 1960 and the mid-1990s, the country's potato output grew at a rate of almost 9 per cent per year. That year, the area under cultivation was 62,650 hectares, distributed across the archipelago in highlands areas at between 800 and 1,800 metres altitude (Bandung lies at 768 metres), mainly by small-scale farmers. The Government is investing in research and development in breeding potato varieties suitable for medium-lying land. The approach has been to create production clusters and development centres, where potato farmers are trained in quality seed production, farm management, agriculture best practice, integrated pest management and supply chain management, as well partnership skills for business. The potato agribusiness provides important employment opportunities in rural areas as well as cities.

In Indonesia, the potato is already an important vegetable, together with shallots, peppers, tomatoes and cabbage. Per capita consumption of potato increased from 0.5 kilogrammes in 1968 to 4.0 kilogrammes in 1995, though it has fallen since to an estimated 1.66 kilogrammes. Even so, the per capita energy share provided by potatoes is just 8 kilocalories a day (compared to 1,235 for rice, 140 for wheat, 183 for maize and 145 for sugars).¹⁶ In the big cities, the young urban generation consumes an increasing quantity of potatoes as snacks (mostly as French fries or potato chips/crisps).¹⁷ To meet this demand, Indonesia imports up to 32,000 tonnes of potatoes from other countries, such as Australia and Canada, though Granola, the most popular table variety, is produced locally.

As the main world reference in trade of seed potatoes, UNECE Standard for Seed Potatoes needs to take account of the specific production conditions found in tropical countries, which are very different from those in Europe and North America. Climate, soil, multi-year cropping cycles and lack of a real winter season in most countries in the area mean that potatoes are often planted and harvested at the same time, thereby allowing pests to move from one generation of potatoes to another, necessitating specific approaches to pest management in the production of seed potatoes. To deliver maximal benefits, and allow producers in the region obtain the higher yields needed to meet demand, production has to be based on quality seed. The survey of the potato sector in Asia had shown that yields were highest in those countries which had a fully-fledged seed potato certification system. Since importing certified seed is costly, many Asian countries are developing their own production of quality seed, though functional certification schemes may not have been widely adopted, or may be at an early stage in their development. The UNECE Standard provides key guidance that can help in the development and evolution of national certification systems.¹⁸

Although there has been a national standard in Indonesia for seed potatoes since 1992, the availability of certified seed potato in 2009 was still below 15 per cent of national demand. The Government has established seed potato farms in several production centres across a wide zone of cultivation. In West Java, large and

16 FAO Food Balances and FAOSTAT

17 Commercially sourced data from 2008 suggest that the 15-24 age-group accounted for 22.9 per cent share of the total savoury snacks consumption, while urban consumers accounted for 52.1 per cent of the total savoury snacks consumption. Data is from www.researchandmarkets.com/reports/1524323.

18 Closing speech by Mr. Pier Giacomo Bianchi, Chairman of the UNECE Specialized Section on Standardization of Seed Potatoes.

medium-sized private companies, applying rapid multiplication technology, have provided an increasing seed supply in the last two years. It is hoped that within five years this will enable Indonesia to reduce seed imports significantly, especially of the much-in-demand *Atlantic* variety.

The Bandung workshop was organized in partnership with the Directorate General of Horticulture, Ministry of Agriculture of Indonesia. Around 90 government officials, growers, traders and researchers from the 23 countries attended the meeting.¹⁹ The participants visited seed-potato producers at PT Hikmah Farm and West Java Potato Seed Farm in Pangalengan, south of Bandung.²⁰

Relevance

There are several global and regional schemes dealing with Seeds and Standards in addition to the UNECE Standard, for example the OECD Seed Schemes. The UNECE Standard covers a major list of requirements including varietal identity and purity, genealogy and traceability, diseases and pests, external quality, physiology, sizing and labelling. The Standard is relevant beyond UNECE to issues that fall also under other global treaty schemes such as the WTO-TBT²¹ and WTO-SPS agreements. The use of the Standard's common terminology and harmonized quality requirements assists buyer and seller in understanding the quality of seed potatoes being marketed in different parts of the world and minimises the risk of technical barriers to trade.

The Russian Federation has made use of the UNECE Standard to update their national seed potato certification scheme. An increasing numbers of countries now use the Specialized Section as a forum for discussing seed potato topics and agreeing on recommended practices.

Efficiency

The standards are a highly efficient way to ensure parity of production and trading conditions for many of the world's most important foodstuffs. As the success of the UNECE Standard for Seed Potatoes demonstrates amply, potatoes already occupy fourth place as a basic foodstuff. With their unequalled range of cultivation in terms of geophysical constants such as latitude, altitude and daylight, as well as their comparative tolerance of variables such as mean temperature, rainfall and soil conditions, their importance can surely only increase. The workshops have been organized back-to-back with meetings of the "Extended Bureau" of the Specialized Section on Standardization of Seed Potatoes, allowing maximal participation of experts with minimum displacement and cost.

Sustainability and replicability

In the words of Mr. Pier Giacomo Bianchi, current Chairman of the UNECE Specialized Section on Standardization of Seed Potatoes: "the use of certified seed potatoes for all purposes should be considered essential, as this can offer a continuous supply of high-quality disease-free (or within specified tolerances) potatoes, of a known and specified quality. It is clear that using the UNECE Standard as a reference and for guidance when designing and developing certification schemes (for seed potatoes) will help ensure that these systems are robust, efficient and effective. Furthermore, my experience has been that such systems work best when there is a strong and effective partnership between industry and government."

¹⁹ Australia, Bangladesh, Belgium, Canada, China, France, Germany, India, Italy, Japan, Netherlands, New Zealand, Pakistan, Philippines, Russian Federation, Sri Lanka, South Korea, Switzerland, Tajikistan, Thailand, United Kingdom of Great Britain and Northern Ireland, United States of America and Viet Nam. Presentations given at that workshop can be found on the UNECE website at <http://www.unece.org/trade/agr/meetings/ge.06/2010-Indonesia.html>.

²⁰ Interestingly, although the fertile andisol volcanic soils are mostly north of Bandung, where there is intensive rice, fruit, tea, tobacco and coffee cultivation, soils in the south and east are mostly alluvial, deposited by the Cikapundung river.

²¹ World Trade Organization – Technical Barriers to Trade; World Trade Organization – Sanitary and Phytosanitary.

“We have heard about the challenges of implementing the UNECE Standard due to the wide diversity of environments and production systems in the different countries in this region. However, given these differences, pursuing intra-regional harmonization of certification criteria and of certification systems can only be of benefit to the region . . . many countries are in the process of developing their certification schemes, and they are continuing to evolve. Equally, participants here from this region can and should have a role in the ongoing development and evolution of the UNECE Standard. This will help ensure that the Standard will be fully applicable to the characteristics of (this) region.”

As long as the world needs to improve its food output and food standards, the work done by UNECE to set and coordinate standards will continue.

Dam it! (by Mr. Bo Libert)

In their struggle to assure themselves of resources, both of energy and water, human beings have long sought to control the flow of rivers. Dams are among the largest constructions ever undertaken by the human race. They also conceal danger on a similar scale. Failure of a dam, even of medium size, can have disastrous consequences for people living in the often densely populated downstream regions and countries.

There is growing concern over the safety of more than one hundred large dams and other water-control facilities located mostly on transboundary rivers in Central Asia. These vary in construction from rock and earth barrages a few metres high to massive concrete structures rising to a vertiginous three hundred metres or more.²² Many of the dams are more than forty or fifty years old and often inadequately maintained. A series of dams within a single river system can multiply the magnitude of risk. The potential for danger from the vast quantities of water stored behind these ageing dams, coupled with population growth in flood plains downstream, increases the risk to life, human health, property and the environment. Just a year ago, the failure of the Kyzyl-Agash Dam in Kazakhstan caused the flooding of a nearby village, killing at least 43 people and leaving some 300 injured.



Many countries have a well-developed framework of institutions that constantly reviews the shifting balance between cost and benefit in the planning, siting and construction of dams. However, there have been no adequate institutional and legal frameworks for overseeing safety of the dams and established procedures for notification of neighbouring countries in case of accidents or emergency situations with dams. Effective national regulatory frameworks and subregional collaboration on dam safety are therefore critical for Central Asia.

Dam safety has for decades been an area of importance in United Nations Economic Commission for Europe (UNECE) activities. In March 1989, senior governmental officials of the UNECE governments endorsed a set of 'Recommendations to ECE Governments on Dam Safety with Particular Emphasis on Small Dams' that focused on legislative, policy, financial and operational levels aspects of the safety of dams, regardless of their size, in Central Asia.

The project "Dam safety in Central Asia: capacity building for regional cooperation" was initiated in April 2006, in a follow-up to the meeting "Promotion of dam safety cooperation in Central Asia" held in Kazakhstan in March 2004, with a major financial contribution from the Government of Finland. The project is also supported by the United Nations Special Programme for the Economies of Central Asia (SPECAs) Project Working Group on Energy and Water Resources (Water/Energy PWG) and constitutes an integral part of the

22 Though the highest of all, Usou Dam in Kyrgyzstan over half a kilometre high (567) metres, is a rockfill landslide dam.

Environment and Security Initiative (ENVSEC).²³ It was implemented in collaboration with the International Fund for Saving the Aral Sea (IFAS)²⁴. Its outcomes positively contributed to the implementation of the Aral Sea Basin Programme 2 (ASBP-2).²⁵

Phase I of the project, completed over nine months to the end of 2006, aimed to “prompt the countries concerned to set up or revise national dam safety regulatory frameworks with a view to achieving their harmonization, and promoting subregional cooperation on information exchange and notification of dams accidents or emergency situations.”²⁶ Both these aims were successfully achieved and produced two major outcomes: (a) a model national law on safety of large hydraulic facilities, including dams, as a base of national harmonized legal frameworks for dam safety, and (b) a draft of the subregional agreement on cooperation on dam safety, which stipulates, *inter alia*, exchange of information and notification of other countries in case of accidents with dams.

The successful implementation of Phase I of the project provided a solid foundation for close cooperation during the Phase II. A regional meeting held in Tashkent, Uzbekistan in 2007 allowed the participants to familiarize themselves with the Uzbekistan regulatory framework on dam safety via presentations and field visits to their facilities.

Using a practical, technical approach to advance dam safety, the project delivered tangible outputs on its four main objectives. At the conclusion of the project, the Governments of the participating countries, jointly and individually have:

- Introduced new, or revised existing, national regulatory frameworks for dam safety.
- Set up a subregional cooperative framework and sustained intraregional cooperation on dam safety.
- Put in place the necessary documentation and technical capacity for harmonizing technical regulations and procedures for monitoring and evaluating dam performance.
- Assured better access to potential sources of technical assistance for rehabilitation of dams and improvement of monitoring and early warning systems.

To promote harmonization, the model law developed in the pilot phase was submitted to SPECA, EC - IFAS, and the EurAsEc Inter-parliamentary Assembly, with a view of its adoption as the basic document for developing relevant national legislations by the countries of the subregion.

The five Central Asian countries have taken action to strengthen their national regulatory framework for dam safety by revising their existing legal provisions and institutional modalities. Tajikistan and Turkmenistan decided to use a model law which had been developed under the project for drafting their national laws. The Tajik parliament approved its national law in November 2010, while the process of approval of the national law in Turkmenistan has been slower. Kyrgyzstan initiated the formation of a national commission on safety of dams. Legislation based on changes in the Water Code is being passed in Kazakhstan. The country also identified an institution which could be assigned national responsibility for dam safety. Uzbekistan has

²³ ENVSEC was conceived to support countries in their efforts to manage the environment as well as security risks. ENVSEC work in Central Asia began in 2002.

²⁴ The International Fund for Saving the Aral Sea (IFAS) was established by the Interstate Commission for Water Coordination of Central Asia (ICWC) on March 23, 1993 to raise funds for the Aral Sea Basin Programme. Formed on February 18, 1997, ICWC includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan and aims to address environmental and socio-economic problems in the Aral Sea region. EC-IFAS is the Executive Committee of IFAS.

²⁵ The Aral Sea Basin Programme (ASBP) was launched in 1994. Phase Two (ASBP-2) was aimed at the implementation of the Water and Environmental Management Project (WEMP). Funded by the GEF, three other donors and managed by the World Bank, it was approved in 1998 at a total cost of \$21.2 million and was completed in 2003.

²⁶ At <http://www.unece.org/env/water/damsafety.htm>

been updating its legislation, and the national institution responsible for dam safety has been systematically strengthened.

With the project due to conclude formally in June 2011, the officials and the experts from the five Central Asian countries held one of the project's concluding meetings in Almaty on 2-3 March 2011. They agreed on the basis for long-term cooperation in the form of a draft regional agreement, and on bilateral cooperation to increase safety of individual dams. They also agreed on the directions for future work, including further development and implementation of national legislation and training of experts, as well as finalization and signing of the cooperation agreement, enabling the implementation of bilateral cooperation on the safety dams and dam systems on transboundary rivers.

More than ten different international organizations contributed in different ways to the project; several of these were represented at the latest meeting, including donors who have increased their support to dam safety cooperation in Central Asia.

The project improved the technical capacity of national regulatory bodies for enforcing safety requirements through national and subregional training activities.

However, the quality of information and procedures for sharing in the region need further development. In some instances, solid baseline information has itself been noticeably deficient. During the implementation of the project, each country prepared reports on aspects of safety, covering previous and proposed national legal, institutional and financial modalities. These reports were compiled in a publication. The publication contains an updated list of large dams in the subregion from the end of 1980s. Much of this information is now available for the first time..



The project also aimed at assisting the Central Asian countries to draft river-basin-wide agreements on information exchange as well as on the introduction and maintenance of early warning systems for dam accidents within the framework of the regional agreement. In cases of transboundary rivers and multiple dams there is a need to pay increased attention at the prediction and prevention of dam failures at national level. The design of emergency preparedness and evacuation plans at river-basin level should also take into account the potentially catastrophic interaction of multiple dams.

While the project was not designed explicitly to address security concerns, it was clear to all stakeholders that water is a central issue for political tension in the subregion. By establishing a forum where representatives from the five countries could share information, debate controversial issues and learn from each other, the project made an important contribution to building confidence in the subregion, advanced the negotiations and promoted subregional cooperation agreement on dam safety.

An evaluation report,²⁷ commissioned by the Government of Finland, concluded: “the project is integrally building confidence and trust in a region where the respective five countries rarely cooperate on concrete matters. In addition to providing a forum for dialogue, the project also establishes more permanent outputs (legislation, standards, identifies institutions responsible for dam safety) and builds capacity and expertise, which serve as concrete vectors for confidence building and practical cooperation.”

Relevance

The evaluation concluded that, overall, “the relevance of this project is very high. It has operated in a highly challenging environment and addressed concerns expressed by local and subregional partners.” As a result of the project, dam safety is included as a priority area in the Aral Sea Basin Programme 3 (ASBP-3) from 2011 to 2015.

The project was also highly relevant in terms of security given political tension between upstream countries (Tajikistan, Kyrgyzstan) that have comparatively little land suitable for agriculture²⁸ but are highly dependent on energy from hydropower, and downstream countries (Kazakhstan, Turkmenistan, Uzbekistan) highly dependent on water for agricultural irrigation.

Efficiency

The evaluation noted delays and changes caused by regional political tensions and particular challenges faced by some countries during the implementation. Both the implementing organisation and the UNECE coordinator reacted rapidly to these changes and, when needed, adjusted the project activities accordingly. The work programme was thereby kept realistic; good communication was established between the project coordinator and his national counterparts to ensure the ongoing commitment of national partners to project implementation.

Sustainability

With the main focus on subregional security, some project-based benefits will be felt after the project. However, further steps need to be taken to ensure continued progress towards achieving long-term political agreement. Without continued interventions, the dual benefits of raising awareness and creating a forum for dialogue are likely to be relatively short-lived.

The project has also created important legal frameworks and technical standards that need longer-term follow-up and enforcement by the national authorities. Though the legal framework on dam safety has advanced considerably in all five countries, it is critical to ensure that appropriate institutions are established and resourced to enforce the legislation in the future.

Unilateral investments in large hydropower projects in the upstream countries can pose a significant obstacle to achieving a lasting regional agreement on common issues. The present project has usefully alerted international partners to give continued attention to security issues in transboundary management of water resources, regional cooperation on water and energy, as well as on dam safety. Successful implementation of the Aral Sea Basin Programme (ASBP-3) could pave the way for a more sustainable subregional agreement on these issues.

27 Gaia Consulting, Oy: *Evaluation Report for Environment and Security Initiative (ENVSEC)*, (Executive Summary). 17 November 2010.

28 More than 93 per cent of the surface area of Tajikistan, and 80 per cent of the area of Kyrgyzstan, is mountainous.

Replicability

The evaluation showed that the project has contributed towards strengthening the confidence building in Central Asia. As an illustration, several stakeholders suggested that a ‘pilot’ dam safety project would provide valuable additional benefits, further strengthen the capacity of experts and institutions and sustain motivation. Such a project, implemented at local level, could demonstrate ‘in practice’ the benefits of transboundary cooperation through joint management of water (and energy) resources”.

While the geography and political inheritance of Central Asia may be uniquely challenging, the success of the project – or others with a similar capacity for delivering positive outcomes – could be replicated through transboundary cooperation on other salient issues and joint management of future projects.

A golden opportunity for cooperation (by Mr. Bo Libert)

Mining is a risky business, even when the rewards are pure gold. This is the story of how the UNECE Espoo Convention helped to give both the local population and neighbouring Kazakhstan the opportunity to comment on planned mining in Kyrgyzstan, and thus reduce environmental risks.

Environmental threats do not respect national borders. Environmental degradation, erosion, damage to the biome and chemical waste can create serious hazards that threaten human populations and natural ecosystems alike, regardless of a state boundaries. To avert these dangers, Governments must notify and consult each other at the planning stage on all major projects that might have adverse environmental impact across their shared borders.

Environmental damage can often be anticipated. It is possible to assess the impact that a project will have on the environment when it is still at the design stage. However, when a project might have adverse environmental impact across borders, a local or even national impact assessment may be incomplete if, neighbouring countries are not consulted and their concerns taken into account.



Where transboundary impact can be anticipated – and this is very often the case in the congested

theatre of the UNECE region – a transboundary approach to an environmental impact assessment (EIA) helps reduce tensions caused by the project. The scientific and technical nature of the EIA helps to minimize potential misunderstanding, increases collaboration between all stakeholders, and ensure a well-informed and active public.

The UNECE Convention on Environmental Impact Assessment in a Transboundary Context was negotiated to promote environmentally sound and sustainable development, while also enhancing international cooperation in assessing environmental impact, in particular in a transboundary context. It does this by defining how countries should carry out an EIA when a project is likely to have a cross-border impact. The Convention was the one of the first multilateral treaties to specify the rights and duties of Parties with regard to transboundary impacts of planned activities, and provide procedures for the consideration, in a transboundary context, of environmental impacts in decision-making. The Convention is a key step to bringing together all stakeholders to prevent environmental damage before it occurs.

The Convention was adopted in 1991 in the Finnish city of Espoo and is thus often called the “Espoo Convention”. The Convention entered into force with 16 Parties in 1997. By 2010, there were 44 Parties to

the Convention.

The public (and their representatives in NGOs) plays a key role in EIAs and hence in the implementation of this Convention. Public involvement contributes to improved relations between people and countries, thereby helping to prevent transboundary environmental conflicts by building public trust through the development of civil society and democracy, sensitizing people to, and helping them participate in, decision making and stimulating their interest in environmental issues that affect them in the longer term.

The theme of public participation is important because of the part it plays in the promotion of sustainable development in general and the promotion of long-term good governance in particular. Public hearings provide 'important indirect benefits that can contribute to the capacity for democratic governance and an active civil society'²⁹ Public participation in government decision-making underpins better informed and more objective governmental decision-making, leading in turn to a better framework for preparing conditions and legal agreements to govern future project operations.

A pilot project under the Environment and Security Initiative (ENVSEC)³⁰ was initiated in Bishkek in 2006. The overall objectives were to improve dialogue and cooperation and involve stakeholders and the public in the development and assessment of major projects in Central Asia that have a potential cross-border impact on the environment. The immediate objective of the pilot project was to demonstrate an effective instance of the implementation of the Convention in Kazakhstan and Kyrgyzstan through conducting a full EIA procedure in a transboundary context on a specific planned project in Kyrgyzstan, with the involvement of Kazakh authorities and the public. Kazakhstan and Kyrgyzstan are both Parties to the Espoo Convention³¹.

The project partners included the State Agency on Environmental Protection and Forestry of the Kyrgyz Republic (State Agency), the Ministry of Environmental Protection (MEP) of the Republic of Kazakhstan, the NGO Independent Environmental Expertise in Kyrgyzstan and the Andash Mining Company. Financial support was provided by the Government of Norway. A large part of the pilot project was implemented by the State Agency on Environmental Protection and Forestry of the Kyrgyz Republic with support from the Office of the Coordinator of OSCE Economic and Environmental Activities. UNECE and OSCE field offices in Kazakhstan and Kyrgyzstan managed the pilot project.

To launch the pilot project, a seminar on the practical application of the Convention in Kyrgyzstan and Kazakhstan took place in Bishkek on 26-27 January 2006, with the participation of international experts and the Espoo Convention secretariat. The Andash Mining Company had recently applied for a mining licence in Kyrgyzstan to develop the Andash gold and copper deposits. The proposed mine site was located in Kyrgyzstan, 2.5 km from the border of Kazakhstan, close to the Karakol River, a tributary of the Talas. It was known that groundwater and rainfall run-off could be affected by pollution and that the river would then transport pollution downstream and across national boundaries. Participants at the seminar decided to use the proposed development of the Andash mine as a tangible case study for a project to demonstrate the practical workings of EIA procedures in this particular context, and the Andash Mining Company promptly initiated a transboundary EIA.

²⁹ *Public hearings for EIAs in post-communist Bulgaria: do they work?* Environmental Impact Assessment Review, 24 (2004), pp. 473-493, Almer, H.L., & T.M. Koontz, 2004.

³⁰ ENVSEC was conceived to support countries in their efforts to manage the environment as well as security risks. ENVSEC work in Central Asia began in 2002.

³¹ In the framework of the preparatory process for the World Summit on Sustainable Development (Johannesburg, South Africa, 2002), the countries of Central Asia initiated a sub-regional initiative on sustainable development. This initiative was reflected in the Summit's final documents and was later updated in the final decision of the Fifth Ministerial Conference "Environment for Europe" (Kyiv, May 2003). Among their goals for the sub-region, the Central Asian countries sought to join the Espoo Convention and to coordinate their respective EIA procedures.

The participation of the public in Kazakhstan received particular attention. Public hearings took place on 20 March 2007 in Taraz, organized with the assistance of the OSCE Centre in Astana, the Ministry of Environmental Protection in Kazakhstan, the Department of Natural Resources and Regulation of Nature Use in the Zhambyl region, the NGO 'EcoForum' PK, and the Kazakh ecological NGO 'Akbulak'. The main purpose was to ensure that the local Kazakh population were aware of the planned Kyrgyz mining activities at Andash and their possible impact on the territory of Kazakhstan. More than 120 people participated in the hearings.

Public hearings in Kyrgyzstan were organized by the Andash Mining Company, with the company covering part of the costs. The immediate result of the public hearings was that the concerns of the community were acknowledged and addressed by the company. This contributed to increased public acceptance of the mining project and thereby the project's long-term sustainability.

Information-sharing between Kazakhstan and Kyrgyzstan improved considerably during the pilot project's implementation. All information, including the texts of the Convention and the Guidelines for the Central Asian countries, the national legislation on EIA and the relevant State ecological expertises of Kazakhstan and Kyrgyzstan was published on the ecological network Environment and Sustainable Development in Central Asia and Russia (CARnet)³² as well as on the website of the State Agency.³³

The later phases of the project concentrated on updating the national legislation. In effect, this was a detailed analysis of two 1997 'Instructions for conducting an EIA in a transboundary context in Central Asia'. The outcome was a new version of the 'Instruction on the procedure of conducting transboundary Environmental Impact Assessment (EIA) in the Kyrgyz Republic', renamed to include the transboundary element of an EIA. It was published on the State Agency website and widely distributed within Kyrgyzstan.

A similar process took place in Kazakhstan on 15 May 2008 with a national workshop on how to implement transboundary EIA, led by the Ministry of Environmental Protection of Kazakhstan. Around thirty experts, mainly officials from the central and regional bodies of the Ministry, participated together with representatives of the State Agency of Kyrgyzstan as well as from the OSCE Centre in Astana and UNECE. The main outcome was a recommendation that capacity-building and awareness-raising exercises on EIA procedures should continue in the regions of Kazakhstan, and that several methodological documents on EIA, such as the Guidance on Practical Implementation of the Espoo Convention and the so-called 2005 Guidelines (see below), should be included among the Ministry's standard regulatory documents.

The 2005 Guidelines for implementing the Espoo Convention had been developed by experts from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan through a regional project carried out by CAREC³⁴ in Almaty with the participation of the UNECE.³⁵ These Guidelines were tested and updated during the pilot project's implementation. The project included a training seminar hosted by the Kyrgyz Ministry of Environment and Emergency Situations and co-funded by the OSCE Bishkek Centre.

A working meeting on procedures for transboundary EIA implementation was held in Bishkek on 26-27 November 2007. The meeting discussed the ongoing application of the Convention. Representatives of the State Agency and the Ministry of Environmental Protection presented information on the implementation of

32 website www.caresd.net

33 www.nature.kg.

34 Central Asian Regional Economic Cooperation Institute.

35 www.unece.org/env/eia

the Convention's provisions, with particular regard to the Andash deposits, and evaluated the procedures for transboundary EIA outlined in the 2005 Guidelines. The meeting highlighted the following issues: (a) identification of difficulties caused by complex procedures; (b) how to overcome these difficulties; and (c) whether it was necessary to amend the Guidelines. Kazakh and Kyrgyz experts, working together in ten subsequent joint meetings, analysed the Guidelines in detail and prepared a revised version. The most important addition to the Guidelines was a detailed procedure for promoting public participation. The revised Guidelines have been made available on the State Agency website and distributed to environmental protection experts in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

The concluding phase of the project, a regional seminar on 'Practical Experience of Application of the UNECE Convention on Environmental Impact Assessment in a Transboundary Context in Kyrgyzstan and Kazakhstan' was held in Bishkek on 25-27 March 2009. It was attended by parliamentary representatives,³⁶ ministries and departments, the Andash Mining Company and State environmental protection authorities from Kyrgyzstan and Kazakhstan, as well as Tajikistan and Uzbekistan, local NGOs and representatives of international organizations. The Director of the State Agency presented the pilot project's results and it was agreed to submit the updated version of the Guidelines for approval to the Inter-State Commission for Sustainable Development of Central Asia (ICSD) at its meeting in May 2009.

Relevance

The project is relevant to the mandates of UNECE and OSCE and is consistent with the ENVSEC objectives. It extends the range of countries fully experienced and up-to-date in using the procedures of the Espoo Convention to manage transboundary environmental impact assessments. As the demand for commercial exploitation of resources grows among Parties to Espoo, so does the need for expertise in managing the risk associated with the environment. Those cases which present a transboundary situation involve proportionately greater risks, political and social as well as environmental. The implementation of the Espoo Convention provides tools to mitigate these risks.

Efficiency

Specific results of the pilot project demonstrating its transboundary efficiency included:

- The procedure for conducting a transboundary EIA was tested and further developed.
- National procedures for the practical application of the Convention were developed in Kyrgyzstan and Kazakhstan.
- Project participants increased their capacity and skills with respect to procedures in the application of a transboundary EIA, as well as other dimensions of the Espoo Convention.
- An updated version of the Guidelines for Conducting Transboundary EIA in the Central Asian countries was prepared and discussed.

Sustainability

One of the most important results of the project was the experience of successful cooperation and interaction between the authorities of Kazakhstan and Kyrgyzstan in conducting a transboundary EIA from start to

finish. The two countries have since continued to cooperate in applying the Convention to later economic development proposals. Furthermore, the project demonstrated that the Espoo Convention is an important and effective instrument in terms of promoting cooperation among its Parties through the joint discussion of problems, establishment of contacts, and finding ways to pre-empt and resolve potentially conflicting views between the neighbouring countries.

Other sustainable activities include:

- improving the process of assessment, extending to all the components, such as water resources, air, fauna and socio-economic conditions of residents;
- involving Ministries of Foreign Affairs in the procedure of transboundary EIA, because negotiations are conducted at the inter-State level;
- producing harmonized guidelines for the Central Asian region as a whole, involving consultations with stakeholders in all five countries;
- adopting the updated version of the Guidelines as presented at 2009 meeting of the Inter-State Commission for Sustainable Development of Central Asia for the approval of all Central Asian States;
- considering the incorporation of the updated Guidelines into national law and making their application mandatory at the national level when conducting an EIA assessment in a transboundary context;
- prioritising financial issues relating to the consideration and preparation of comments on EIA documentation;
- organizing activities related to conducting public hearings and other activities that engage the public of the affected Party(ies).

Replicability

For countries that do not have practical experience in implementing a transboundary EIA, the practical approach of the seminars and the hands-on experience of the pilot project were very useful and led to a better understanding of the procedures that need to be in place.

The ratification of the Espoo Convention by all the Central Asian states will significantly facilitate conducting EIA procedures in a transboundary context and ensure its uniform application in other countries and on other projects.³⁷

According to OSCE,: “The project demonstrated the application of transboundary environmental impact assessment in Central Asia between the two countries Kyrgyzstan and Kazakhstan, both parties of the EIA Convention. The project developed national implementation mechanisms in Kazakhstan and Kyrgyzstan. A full procedure of EIA in a transboundary context will further be applied to a specific planned project (production facility or similar) in Kyrgyzstan, with the involvement of Kazakhstan authorities and the public.”³⁸

37 From the Project Report at: www.unece.org/env/eia/documents/ActivityReports/BishkekMar09/Pilot_project_report_en.pdf

38 <http://www.envsec.org/projects.php#48>

Shared benefit or mutual barrier?

(by Mr. Bo Libert)

Rivers are an essential part of mankind's vital resources of fresh water. They form natural waterways that can unite the lands along their banks. Often, however, they constitute formidable natural barriers between rival riparian groups, both animal and human, competing for territory and resources. With the exception of events such as earthquakes, geological time moves immeasurably slowly compared with human time. On this scale, and without human intervention, rivers change their course almost imperceptibly. Not so the political landscape, where major changes can take place literally overnight, and where water's passage along a river sometimes calls on all our political skill as managers and negotiators.

Freshwater must be managed sustainably so that there is enough water to satisfy the demands of growing populations without risk of increasing the threat to the environment and its fragile ecosystems. We also need to adapt to changes in the availability of freshwater as we prepare to face the consequences of changes in weather patterns bringing an increase in both the number and severity of water-related disasters. These interconnected issues are amongst our most urgent current challenges. Transboundary cooperation is a necessity to avoid aggravating political and economic instability between riparian states wherever the geopolitical situation requires a shared approach to ownership of, and access to, these finite natural resources.

In the UNECE region, more than 150 major rivers and 50 large lakes run along or straddle the border between two or more countries. Twenty European countries depend for more than 10 per cent of their water resources on neighbouring countries and five countries in Europe draw 75 per cent of their resources from upstream countries. The situation in Europe is further complicated by the relatively large number of nation states occupying a small area. This means that attempts to solve these complex problems in Europe are nearly always going to involve transboundary issues.

UNECE member states are aware of the need for cooperation if they are to ensure that transboundary waters are used reasonably and equitably, and without significant harm being inflicted by one country on another. They know that they share the same water resources and rely on each other to apply effective solutions. This positive approach to the problem has been triggered in no small measure by the UNECE conventions. The UNECE environmental conventions establish rules for cooperation between neighbouring countries both on the environment and on shared natural resources. Three of these conventions are particularly relevant for water cooperation in Central Asia, as they are in the whole UNECE area: Convention on the Protection and Use of Transboundary Waters and International



Lakes (Water Convention) and its Protocol on Water and Health; Convention on Environmental Impact Assessment in a Transboundary Context (EIA) known as the Espoo Convention, and its Protocol on Strategic Environmental Assessment (SEA Protocol); Convention on the Transboundary Effects of Industrial Accidents (Industrial Accidents Convention), and its joint Protocol on Civil Liability. The Water Convention is of particular importance, as it provides a basic international legal framework for transboundary water cooperation.³⁹ It is the only Convention on transboundary waters currently in force.

In 2003, the Convention was amended to allow accession by countries outside the UNECE region to accede to the Convention and its Protocols, thereby enabling them to use the Convention's legal framework and draw on its experience. This is clearly of growing importance for countries that border the UNECE region, and may have transboundary issues, such as Afghanistan, China and the Islamic Republic of Iran.

This is the institutional framework for a triple story of successful projects under the Water Convention for cooperation along the courses and throughout the basins of three of the great drainage systems of Eastern and South-Eastern Europe and Central Asia.

The first of these, initiated in 2007, is the joint UNECE-OSCE project for Eastern Europe, "Action Programme to improve transboundary cooperation on the Dniester River" which flows between Ukraine and the Republic of Moldova (including Transdniestria). In the second project, which consolidated significant prior efforts, UNECE, UNESCAP⁴⁰ and OSCE⁴¹ supported the formal establishment in 2006 by Kazakhstan and Kyrgyzstan of a Joint Commission to manage the transboundary Chu-Talas river basin. Lastly, a project in the Western Balkans addresses salient problems in the complex transboundary lake and river system in the Drin Basin.

Transboundary cooperation on sustainable management of the Dniester River

The Dniester River is a transboundary river, 1380 kilometres long, shared by the Republic of Moldova and Ukraine. The river starts in the Ukrainian Carpathians, flows through the Republic of Moldova and reaches Ukraine again near the Black Sea. The Ukraine segment is 629 kilometres, Ukraine and Moldova share 225 kilometres of the river, while 475 kilometres are within the borders of the Republic of Moldova. A very small upper part of the Strviash River (a tributary of the Dniester) lies within the territory of Poland. Ukraine and the Republic of Moldova are Parties to the Water Convention and both countries are aiming at becoming members of the EU, which will bring the issues within the scope of the European Union (EU) Water Framework Directive.

The Dniester basin is populated by about 8 million people, more than 5 million of whom live in Ukraine and 2.7 million in the Republic of Moldova. Population density in the Dniester River basin is more than 110 people per square kilometre, significantly higher than the average in the Eastern European region. The river is the main source of drinking water for the Republic of Moldova and for a significant part of Ukraine, including the city of Odesa, but it is currently facing environmental problems caused by pollution aggravated by a lack of harmonization between the two main national water flow regimes.

In 2004–2006, UNECE, in collaboration with OSCE implemented the project on Transboundary Cooperation

³⁹ Bo Libert, *Water Management in Central Asia and the Activities of UNECE*, Water & Development Publications, Helsinki University of Technology, 2008.

⁴⁰ United Nations Economic and Social Commission for Asia and the Pacific.

⁴¹ Organization for Security and Cooperation in Europe.

and Sustainable Management of the Dniester River, with funding from the Governments of Sweden, Switzerland and the United States.⁴²

Referred to as Dniester I, the project resulted in a Transboundary Diagnostic Study for the Dniester River Basin and the signature in 2005 by the two countries of a Protocol of Intentions Regarding Cooperation in Environmental Rehabilitation of the Dniester River Basin. Reciting the two countries' "common political will to attain the environmental rehabilitation, balanced and environmentally sound use of natural resources in the Dniester river basin in the interest of creating favourable conditions for the livelihood of the current and future generations, conserving and ensuring sustainability of ecosystems, preventing, restricting and reducing transboundary impact",⁴³ the Protocol also outlined, amongst other intentions, the following: (a) to improve the international legal basis for intergovernmental cooperation, (b) to establish a basin system of regular information exchange, (c) to maintain a close interaction with the public, including involvement of NGOs into the decision-making process on the environmental conditions of the Dniester River basin.



A network of stakeholders and a river-basin website (www.dniester.org) was also established. UNEP/GRID-Arendal⁴⁴ contributed to the information management component of the project. The river basin website, which is managed jointly by the Moldovan and Ukrainian authorities, could facilitate the development of a pilot transboundary geo-information system (GIS) under a Dniester Secretariat supporting the implementation of the new Dniester Agreement.

In 2006, UNECE and OSCE launched the Action Programme to improve transboundary cooperation and sustainable management of the Dniester

River basin. The Dniester II project was part of the Environment and Security Initiative (ENVSEC). It was financially supported by Sweden.⁴⁵

The project partners were the environmental and water management authorities in the Republic of Moldova (including Transdniestria) and Ukraine. Non-governmental organizations, the scientific community and health authorities were also involved in drafting, negotiating and agreeing on the joint Action Programme, encapsulated in a draft new bilateral Dniester River Basin Agreement.

42 OSCE/UNECE at <http://www.osce.org/eea/38320>

43 Protocol of Intentions regarding cooperation for the environmental rehabilitation of the Dniester river basin. Done on 1st December 2005 in Kyiv and in Chisinau.

44 GRID-Arendal is an official United Nations Environment Programme (UNEP) collaboration. Its mission is 'to create environmental knowledge enabling positive change . . . by organizing and transforming available environmental data into credible, science-based information products, delivered through innovative communication tools and capacity-building services targeting relevant stakeholders'.

45 ENVSEC is a partnership between the United Nations Development Programme (UNDP), the United Nations Environment (UNEP), OSCE, the North Atlantic Treaty Organization (NATO), UNECE and the Regional Environmental Centre for Central and Eastern Europe (REC). ENVSEC works to 'assess and address environmental problems which threaten or are perceived to threaten security, societal stability and peace, human health and/or sustainable livelihood within and across national borders in conflict-prone regions.'

The new Agreement broadens the scope of cooperation significantly in ways described below, and provides for the institutionalization of stakeholder participation in decision-making, improvement of cooperation on sanitary-epidemiological issues, and the establishment of principles of a joint information system for the Dniester River basin.

The Agreement reached in the project Dniester II to cooperate on conservation and sustainable development of the Dniester River basin⁴⁶ sets out five main aims: (a) development of sustainable water use based on the long-term protection of water resources; (b) considerable decrease in the pollution levels of the Dniester River basin and the Black Sea; (c) prevention of deterioration and rehabilitation of ecosystems, and also conservation of the biodiversity in the basin; (d) use, protection and management of the basin's biological resources on the principles of sustainable development; and (e) prevention and mitigation of slow-rise floods, flash floods, droughts and other adverse water impacts.

The principles it sets out on cooperation, and the related undertakings, are ambitious and wide-ranging, expressing a strong social idealism in its aims, "to protect, utilize and manage water and water-related resources based on the complex approach and in such a manner that the needs of the present generation might be met without compromising the ability of future generations to meet their own needs". The Contracting Parties "shall assume that no use of the basin's water resources enjoys inherent priority over other uses . . . with special regard being given to the vital need of population and ecosystems for ample water supply". It is encouraging to see that the cooperation on ecosystems includes "protection and rehabilitation of the basin's biological resources, in conservation and restoration of biodiversity, ecosystems, landscapes and wildlife habitats", with Article 12 obligating stringent conservation standards for biological resources, including local bans on the exploitation of certain species, and Article 13 providing for the registration and protection of wetlands, natural landscapes and riparian erosion zones.

One of the specific features of both Dniester I and II projects is stakeholder participation. The Regulation signed between two countries on 19 December 2007 makes provision for public participation in the work of the Dniester Commission and in its decision-making. Equally important is the Regulation on the management of the joint Dniester River basin website and a related project on the development of a transboundary information system for the Dniester River basin.

Implementation of the Action Programme is coordinated by the main national environment and water management authorities, the Agency 'Apele Moldovei', the State Agency on Water Management of Ukraine, the Ministry of Ecology of the Republic of Moldova and the Ministry of Environment and Natural Resources of Ukraine, in partnership with other interested ministries, agencies and NGOs.

The "Dniester III" project on the implementation of the Action Programme is a complex and wide-ranging project funded by Sweden and Finland under the umbrella of ENVSEC and implemented by UNECE, OSCE and UNEP, in close collaboration with authorities and NGOs from the Republic of Moldova and Ukraine.

Its main aim is to improve the joint management of the basin through: (a) promoting adoption of the new Dniester River Basin Agreement; (b) facilitating cooperation between the sanitary-epidemiological services of the two States; (c) supporting activities on biodiversity conservation (with a focus on fisheries); (d) facilitating information exchange at the national and basin levels; and (e) raising public awareness and promoting media coverage of the environmental issues of the Dniester River basin.

⁴⁶ The provisions of the Agreement "shall be fully applicable to the basins of the transboundary rivers Kohylnyk, Sarata, Khadzhide, Alkaliya that empty into the Black Sea via estuaries".

Among many new draft regulations and other important documentation developed within the framework of the Dniester projects, a number of tangential projects are of great importance, including a project proposal that addresses the need for improvement of water quality control through capacity-building and networking of sanitary services in the transboundary Lower Dniester River area.

The current project specifically proposed a new Regulation on cooperation on sanitary-epidemiological control of water quality in the transboundary Moldovan-Ukrainian section of the Dniester River basin.⁴⁷ The Regulation was drafted and agreed between the sanitary-epidemiological services in Ukraine, the Ministry of Health in Moldova and the health authorities in Tiraspol. Seven joint trimestrial samplings have subsequently taken place between 2007 and 2010.

The Chu-Talas Rivers Commission

In Central Asia, sub-region of the UNECE region, transboundary water issues have long had the potential to engender tension or dispute. Shared water resources, such as rivers or lakes, mean that problems and risks are also shared and that solutions need to be coordinated. Without dependable cooperation between countries, there is a risk that actions decided unilaterally by one country might have unwanted effects in neighbouring countries, or that national strategies in different riparian countries might diverge or even be contradictory. The Chu-Talas Commission provides a good example of effective bilateral cooperation in two Central Asian countries to establish both an effective policy and a functional inter-country institution.

The Chu-Talas endorheic basin is defined principally by the high Kyrgyz ridge. The area of the watershed is well over 50,000 square kilometres, lying at an average altitude of 2,500 to 2,700 metres above sea level. Only just over twenty per cent of the land area is in Kyrgyzstan and almost eighty per cent in Kazakhstan. The total water resource in the basin has been estimated at 1.5 cubic kilometres. The basin is drained by two main unconnected rivers, the Chu and the Talas, each with many smaller tributaries fed partly by seasonal snowmelt and partly by glacier run-off. The 1,100 kilometre long Chu River rises in the Tien Shan Mountains in Kyrgyzstan. Though it runs geographically close to the saline Lake Issyk Kul an important biosphere, the Chu is deflected away from the lake by a ridge of hard rock. Instead, it turns west into the steppe where it dries up before reaching the Syr Darya. The Talas River rises in the eponymous province of Kyrgyzstan and flows west into Kazakhstan. It runs a total course of some 450 kilometres, through the Kazakh city of Taraz, before it too vanishes into the sands of the Moyynqum desert in southern Kazakhstan.

The waters of the Chu and Talas rivers are shared by Kazakhstan and Kyrgyzstan, with than 1 million people in Kazakhstan and 1.2 million in Kyrgyzstan living in the Chu-Talas transboundary river basins. These rivers represent crucial sources of water for both countries. The rivers are used extensively for agricultural irrigation, fish farming and hydroelectric power, as well as general domestic needs. The Kirov reservoir on the Talas dates from 1975. The 83.7 metre high dam has a capacity of 0.55 cubic kilometres, almost half the total annual catchments of the basin. Though the reservoir is wholly within Kyrgyzstan, it lies close to the border with Kazakhstan. By contrast, the 1956 Orto Tokoy dam, the oldest in Kyrgyzstan, lies further upstream, away from the international borders.

Although elsewhere in the region the sharing of water resources can be typically characterized by historical tensions between upstream and downstream countries, a joint approach to using the waters of the Chu

47 And other transboundary rivers of the Black Sea basin.

and Talas goes back to the Soviet era. In 1983, the Kyrgyz Soviet Socialist Republic and the Kazakh Soviet Socialist Republic signed an agreement on water sharing for irrigation in the Talas basin. The agreement stipulated an equal allocation of 50 per cent to each republic. Currently, within the Talas basin, there is an estimated area just under 115,000 hectares of irrigated land in Kyrgyzstan and 80,000 hectares in Kazakhstan. Since at the time both countries were within the Soviet Union, water operations were funded from the central Ministry of Water Resources, which absorbed or provided for all maintenance costs. After independence, the area comprising the river basin was constitutionally in two separate countries, and the Soviet-era water management framework could easily have been regarded as having limited legitimacy, if any. Nevertheless, in 1991, the governments of these two newly independent Central Asian States agreed to continue water-sharing arrangements that had been in place since Soviet times.

Against this long background of centralized cooperation and regulation going back almost two decades, a new bilateral Agreement was signed in 2000 between Kazakhstan and Kyrgyzstan on Inter-state Use of Hydro-technical Facilities of Chu and Talas Rivers. Under the Agreement, ratified in 2002, Kazakhstan agreed to contribute to the operating and maintenance expenses of a number of Kyrgyz dams and reservoirs that supply water to both countries.

The establishment⁴⁸ of the Chu-Talas Rivers Commission was supported by the project “Chu-Talas I”, organized jointly by the United Nations regional commissions for Europe (UNECE), and Asia and the Pacific (UNESCAP), together with the Organization for Security and Cooperation in Europe (OSCE). The project facilitated the development and approval of the Statute of the Rivers Commission, and drew up guidelines for financing costs of repair, operations and other activities related to water infrastructure.

The project demonstrated coordinated action by international organizations: in addition to initial financing provided by Sweden and the United Kingdom, Chu-Talas I was complemented by add-on activities funded by the Asian Development Bank (ADB), including continuing support for the joint Kazakh-Kyrgyz Secretariat.

Since its inauguration on 26 July 2006, in Bishkek, the Commission has coordinated the maintenance and use of infrastructure on the Chu and Talas rivers. Kazakhstan and Kyrgyzstan have equal standing in the Commission, and each country reports to its national water management agency. The importance of the Commission is demonstrated by the fact it met five times within the first two years of its inauguration. The Commission represents a mutually beneficial way for both countries to share the responsibility for the water infrastructure they both use. The best practices on transboundary water management between Kazakhstan and Kyrgyzstan are promoted on the river basin website.⁴⁹

A follow-up project that started in 2007 supports a further broadening of the cooperative efforts to improve the water resources management of the Chu and the Talas. The follow-up project, “Chu-Talas II”, addressed certain of the Commission’s practical tasks, including updating the methodology of co-funding maintenance, operation and reconstruction costs for each water facility, developing a unified methodology for volumetric water measurement, and defining the impact of groundwater flow in the Chu and the Talas and its effect on water allocation.

As well as revising the bilateral agreement of 2000, Chu-Talas II incorporated a step-by-step broadening of the functions and mandate of the Chu-Talas Commission to include cooperation on eco-system protection

⁴⁸ This and the following paragraph have been adapted from Bo Libert, Water Management In Central Asia and the Activities of UNECE, Water & Development Publications - Helsinki University of Technology.

⁴⁹ www.talascu.org

and, water quality public participation in the decision-making process. In addition to funding from Finland for work by OSCE and UNECE in Chu-Talas II, ADB continued its support for activities of the Commission Secretariat, and financed the renovation of part of the physical infrastructure on the rivers. The European Union implemented a project on integrated water resources management in the basins of the Chu and Talas rivers, and UNDP assisted in disseminating of project information.

UNECE and its partners see this as a model demonstrating how the Water Convention can help countries to overcome potential conflicts. As an example of direct and effective cooperation, the Agreement and the Commission have been heralded as a significant breakthrough in water relations in Central Asia – though “ground-breaking” might be a more appropriate way to characterize its potential for improving cooperation on other pressing transboundary water and energy issues in the subregion.

Drin Basin Project

The Drin transboundary system demonstrates the interdependences between different water users as well as the actual uses and functions of several interconnected freshwater bodies within the Western Balkan countries of the Drin Basin and the Adriatic. Cooperation between riparian countries has been established over the Lakes but not at the basin level. As a result, the basin is managed through various different and often conflicting national management approaches, and this in turn leads to the degradation of natural ecosystems, and considerable pollution export to the Adriatic Sea.

The Drin Basin in the Western Balkans includes parts of Albania, Greece, the former Yugoslav Republic of Macedonia, Montenegro, and Kosovo (UN administered territory under UN Security Council Resolution 1244). It includes the watersheds of the Prespa, Ohrid and Shkoder Lakes and the Black Drin, White Drin, Drin and Buna/Bojana Rivers. The extended Drin Basin links the lakes, wetlands, rivers and other aquatic habitats into a single ecosystem of major importance. Several national parks and protected areas have been established to protect exceptional natural assets. In Lake Ohrid, ten out of seventeen fish species are unique to the lake, an example of the great value of biodiversity in the basin.

UNECE and Global Water Partnership Mediterranean (GWP-Med), with funding from Sweden, collaborated to develop projects for the transboundary and integrated management of the extended Drin River. This process brings together governmental and non-governmental representatives from the countries that share the basin, as well as international organizations and donors.

On the basis of their preparatory work and meetings, a full-size project, also funded by Sweden, was launched in February 2010 and with an implementation period until July 2011. The main objective is the development of a Strategic Shared Vision for the sustainable management of the Drin basin in a consultation process – the Drin Dialogue. The project is also developing an application for a Global Environment Facility (GEF) project with the aim to operationalize this vision.⁵⁰

The Drin Dialogue is a structured consultation process aiming at the development of a shared vision among the riparian countries and other stakeholders for the sustainable management of the Drin Basin. The objective is to develop an agreed shared vision for future management before summer 2011. The Drin Dialogue is facilitated by UNECE and GWP-Med using the platforms of the UNECE Water Convention and the Petersberg

50 For more detailed project information see: <http://www.gwpmed.org/>

The first National Consultation in the Drin Dialogue was held on 2 November 2010 in Ohrid⁵² with the participation of more than 50 stakeholders from the former Yugoslav Republic of Macedonia, attended by the Minister of Environment and Physical Planning, and the EU Special Representative in Skopje. Major issues explored at the meeting will feed into a situation analysis forming the basis for further work. Issues raised in Ohrid included: the decreasing water level in the Prespa Lake, the threat from fisheries to biodiversity including the unique fish species in Lake Ohrid, water regulation resulting from hydropower installation, and water pollution. Severe recent floods, possibly due to climate change, indicate that this is becoming an increasing problem.

The Drin Core Group provides guidance for project implementation. It includes representatives of all the major stakeholders.⁵³ The Drin Core Group may become the basis for a future joint body for the management of the Drin Basin, as well as providing a suitable forum for the discussion of topics of joint interest and shared importance such as the developments on the national level and a strategy to attract funding from, inter alia, UNDP/Global Environmental Facility.

Global Environmental Facility (GEF) has committed itself to be engaged in the Drin Dialogue. A draft Project Identification Fiche for GEF funding was finalized in the beginning of 2011. Continued support for the work of the Drin Dialogue after summer 2011, with an eventual target of USD 4-5 million for implementation of the project over four years, would be highly beneficial for the development of cooperation of the basin management.

Relevance

The three projects under the Water Convention amply demonstrate the critical need for transboundary cooperation in addressing complex water issues. Since much, if not most of the world's surface freshwater resources are in areas where there are difficult and unresolved transboundary issues, the Water Convention lies at the heart of much necessary political commitment and technical implementation of projects to mitigate the threat and ameliorate the situation.

The issues of water resources, which are finite, and the unknown long-term effects of climate change, which threaten these resources, are clearly interdependent, and sustained initiatives to improve the protection, management and use of water resources. With the effects of climate change becoming increasingly apparent, it is obvious that transboundary water management needs to be further improved to develop coping strategies and prepare for adaptation and mitigation.

There is additional and highly significant contextual relevance of the Protocols under the Water Convention, and part of the success of the three projects in this story is that they demonstrate that coordinated transboundary action and cooperation is the only viable way forward to achieve sustainable and lasting solution.

⁵¹ The Petersburg Process is a joint initiative of the German Government and the World Bank. The first Petersburg Round Tables on Trans-boundary Waters conference was held at Petersburg near Bonn, on 3-5 March 1998. Phase I highlighted water as an opportunity for close regional cooperation from a global perspective. Phase II, launched in 2005, focuses on cooperative operationally oriented activities concerning trans-boundary water management, concentrating its activities on smaller catchments basins of South Eastern Europe.

The Athens Declaration emerged from a 2003 conference organised by Greece with the World Bank. It is a framework for cooperation on capacity building and knowledge sharing on IWRM and the development of IWRM plans for transboundary basins in SEE Europe and the Mediterranean.

⁵² Former Yugoslav Republic of Macedonia.

⁵³ Environment and water resource ministries of Albania, the Former Yugoslav Republic of Macedonia and Montenegro, Kosovo (UN administered territory under UN Security Council resolution 1244), the Lake Skadar/Shkoder Commission, the Lake Ohrid Committee, stakeholders from Prespa Lake, UNECE, the GWP-Med and NGOs.

Efficiency

There are 38 Parties⁵⁴ to the UNECE Water Convention, of which 26 are signatories. In addition to the Bureau, the Convention has two main Working Groups, a Legal Board, a Task Force on Water and Climate, the Joint Ad-Hoc Expert Group on Water and Industrial Accidents and the International Water Assessment Centre (IWAC). The three projects here are defined Activities under the Convention's Workplan, each according to its particular geographic area.

Projects under the Water Convention benefit from being embedded in this large and well-connected network of inter-governmental, governmental and non-governmental organisations that work on water issues. This gives projects under the Convention a potentially extensive interested audience, any of whom can access documentary project material and data relevant to their purpose. Projects under the Convention thus may have an impact far wider than the territory or countries delineated by the project itself, ensuring an efficient use of expert personnel and other resources.

Sustainability

All three of these projects under the Convention have inbuilt proposals and mechanisms for further expansion of the scope of their activities to address problem areas and issues, either those known at the outset but not included in the initial project because of, absence of budget, lack of initial agreement, political instability or those which emerged during the earlier phases of the project from technical research or closer scrutiny of data collected along the way.

In this way, Dniester I was succeeded by Dniester II and III, in which a number of important provisions have yet to be finally signed and implemented, particularly relating to sanitation and water quality. The successful cooperation between Kazakhstan and Kyrgyzstan in forming the joint Chu-Talas Rivers Commission could inform and facilitate constructive developments for the faltering Aral Sea campaigns. The Drin Basin projects' presence in, and a high-level visit by project and UNECE mission personnel to, the former Yugoslav Republic of Macedonia provided an opportunity to discuss that country's accession to the Water Convention, which is expected to take place once changes have been implemented to the distribution of responsibilities between the Ministry of Environment and Physical Planning and the Ministry of Agriculture, Forestry and Water Management. National representatives from the former Yugoslav Republic of Macedonia consider the seminar on the Water Convention organized by UNECE in Skopje 2009 to have been highly important as a step in the direction of accession.

Replicability

The dissemination of project results, whether through direct channels or via the powerful communications networks created by collective pooling of resources under the umbrella of large-scale coordinating bodies such as UN Water, means that positive results and/or lessons learned in one generation of successful projects could be replicated in the next, and so on. While each set of geophysical conditions and each geopolitical situation is unique, belonging not only to a specific place, but also to a particular time as well, each of the projects under the Convention contains the seeds of its own replicability – at least inasmuch as the techniques and mechanisms developed in each have been honed and refined as the project has evolved and can be further adapted and exploited in projects as yet unformulated.

54 With Ratification, Accession, Acceptance or Approval as relevant.

Roadmap for road safety

(by Ms. Virginia Tanasse)⁵⁵

On August 17th 1896, Bridget Driscoll stepped off a kerb and into oblivion. The day-tripper at a folk-dancing display in a south London park did not see the motor car moving at 4 miles an hour that knocked her down, inflicting fatal crushing injuries. She was the first to die in a car accident in the United Kingdom.⁵⁶ The jury at her inquest decided that her death had been accidental. The Coroner, William Percy Morrison, using the word 'accident'⁵⁷ for the first time to describe a violent death caused by speed, said 'This must never happen again'.⁵⁸

Nowadays, millions of people start their day with motorised journeys. Most drivers are aware, when they get into their car or truck, that they are facing some element of risk. Few of us, however, expect to die as a consequence of using the roads or kill someone else as a result of our driving. As motorised transport has become virtually ubiquitous, shortening the odds of a road traffic accident dramatically, road deaths have climbed to epidemic proportions.

Death on the road is now the ninth commonest cause of death. Nearly 1.3 million people are killed on the roads each year; 50 million others are injured, and many of these are left permanently disabled. Annual deaths are forecast to rise to 1.9 million by 2020 and rise to fifth place in the list of leading causes of death by 2030.

Road death is also an economic issue. Developing countries and economies in transition bear around ninety per cent of the road death burden.⁵⁹ Road traffic crashes also disproportionately affect the poor in low and middle-income countries, which have only 48 per cent of the world's registered vehicles. Most vulnerable are pedestrians, cyclists and motor-cyclists⁶⁰ and passengers on unsafe public transport. When a family's only breadwinner is killed or disabled in a road crash the whole family is likely to become impoverished.

Road deaths on this scale are a development issue. The annual cost of road traffic injuries in these poorer



⁵⁵ A former UNECE staff.

⁵⁶ Mary Ward is recorded as the first person killed by a car. She fell out of a steam-powered vehicle in Offaly, Ireland, in 1869.

⁵⁷ The World Health Organization uses the term *road traffic injury*, while the U.S. Census Bureau uses the term *motor vehicle accident*.

⁵⁸ Three years later, on 14th September 1899, Henry Hale Bliss was fatally crushed by an electric car as he descended from a tram in New York City.

⁵⁹ The World Health Organization, Global Status Report on Road Safety, 2009.

⁶⁰ Including users of motorised two- and three-wheelers.

countries is over 65 billion US dollars. Road crashes typically account for between 1 and 1.5 per cent of gross national product, more than these countries receive in development assistance.

Each year, 260,000 children under the age of eighteen are killed or seriously injured on the world's roads. In developing countries, as many as 80,000 children aged from five to fourteen are killed on their way to school. It is already the leading global cause of death for children and young people aged from five to twenty-nine, and by 2015, it will be the leading health burden for all children over the age of five in developing countries.

Road deaths are, in fact, rarely a result of 'accidents'. Overwhelmingly, they emanate from human behaviour or infrastructural deficiencies that are avoidable or rectifiable. These include excessive speed or driving while intoxicated (and other risk-seeking behaviour, especially among younger road users); failure to install or properly use safety equipment; vehicles that are old, poorly maintained or lack safety features; poorly designed or insufficiently maintained road infrastructure, offering little or no protection to pedestrians; poor or unsafe public transportation; badly managed commercial fleets operations;⁶¹ deficient traffic legislation, or poor law enforcement; and inadequate or insufficiently accessible trauma care and rehabilitation.

Although more than a century had passed since the first lives were lost in motor traffic 'accidents', by 2003 the situation was regularly being described as a "crisis".⁶² The United Nations acknowledged that road traffic deaths and injuries were "widespread and preventable". Although the causes of road traffic fatalities are numerous, and their interactions are complex and difficult to "model" mathematically with any precision, each of them is preventable in itself. Leading road-safety experts believe that, with the right actions to cut the rate of increase, in a ten-year period up to five million lives could be saved and fifty million injuries prevented. This would represent a reduction of about 50 per cent in the predicted global death toll by 2020.

The growing economic burden of road crashes, especially in poorer countries, being increasingly recognized officially.⁶³ In 2004, WHO and the World Bank published the first World Report on Road Injury Prevention. Other major reports followed in quick succession, helping realign worldwide opinion towards creating a culture of road death avoidance through targeted safety measures.

The need for action to improve global road safety was recognized in a series of General Assembly Resolutions: 58/289 of April 2004, 60/5 of October 2005, and 62/244 of March 2008. A World Day of Remembrance for Road Traffic Victims was declared in 2005. In particular, resolution 60/5 strengthens the mandate for UN regional commissions and agencies to take forward action on road safety, and resolution 62/244 invites "all Member States to participate in the projects to be implemented by the United Nations regional commissions to assist low and middle income countries in setting their own national road traffic casualty reduction targets, as well as regional targets."

The project "Improving global road safety: setting regional and national road traffic casualty reduction targets" flows directly from the Resolutions and their recommendations, especially those of Resolutions 60/5, and 62/244.⁶⁴ The project was implemented by the UN Economic Commission for Europe (UNECE) in cooperation with other UN regional commissions and was funded by the United Nations Development Account (UNDA).

⁶¹ Or, as the Moscow Declaration puts it 'Recognizing that a large proportion of road traffic deaths and injuries occur in the context of professional activities, and that a contribution can be made to road safety by implementing fleet safety measures . . .'

⁶² A/RES/57/309 Global Road Safety Crisis; May 22, 2003.

⁶³ A/R ES/58/289 Improving Global Road Safety; April 14, 2004. Acknowledged the release of the *World Report on Road Traffic Injury Prevention* and invited WHO to coordinate the road safety activities of UN organizations.

⁶⁴ ECE Project website: <http://www.unece.org/trans/main/welcwp1.html?expandable=99>.

The project goal was to strengthen international cooperation and knowledge-sharing on road safety, taking into account the specific needs of developing countries. The report 'Towards Zero' by the Organisation for Economic Co-operation and Development (OECD) provided a valuable framework for the project activities.

The core of the project was a series of road safety seminars in each of the five United Nations Regional Commission areas across the world which brought together countries sharing similar road safety problems, with road safety experts from countries with good road safety records. The project aimed to help low and middle income countries develop regional and national road traffic casualty reduction targets, by providing them with examples of good road safety practice that could help them to achieve those targets by 2015.



The UNECE region is home to twenty per cent of the world's population.⁶⁵ It includes some of the world's richest countries, as well as countries with a relatively low level of development.⁶⁶ With some exceptions, the general pattern is one of falling fatalities in European Union (EU) countries and other western European countries, and rising fatalities in Eastern Europe and Central Asia. Within the UNECE region, implementation of the project concentrated on the non-EU member countries including Central Asian republics.

The first project event was a seminar for Eastern Europe and Central Asian countries,⁶⁷ held in Minsk, Belarus, on 12-14 May 2009. The second project event was a conference in Halkida, Greece, on 25-26 June 2009, for countries in South East Europe.⁶⁸ The two events were each designed to focus on groups of countries that are homogeneous in terms of geographical location and road safety conditions.⁶⁹ In addition, the countries chosen for the Minsk seminar have some commonality of political history and language. The Halkida conference countries are geographically close together and several also share a political background and face similar problems. Tourism is another theme linking these countries.

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⁶⁵ This publication is concerned with stories from the UNECE region, so although this project was global in its reach, the following account focuses on the project outcome in the fifty-six countries within the UNECE region.

⁶⁶ GNI per capita ranges from USD 460 in Turkmenistan to USD 84,890 in Luxembourg.

⁶⁷ This group of countries includes three low-income countries, Kyrgyzstan, Tajikistan, and Uzbekistan, and the medium-income countries of Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, the Republic of Moldova, Turkmenistan, the Russian Federation and Ukraine, though Georgia, Kazakhstan, and Kyrgyzstan were not represented at the seminar.

⁶⁸ In addition to Greece, this group includes the medium-income countries of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Romania, Serbia, the Former Yugoslav Republic of Macedonia and Turkey.

⁶⁹ The two groups together cover all the medium-income countries in UNECE apart from Latvia, Lithuania and Poland, all of which are EU members.

hazard, negatively impacting on their development. The project resulted in clear support for action, and Declarations were agreed for future progress.

The seminar and the conference had been focused on the South Eastern and Eastern countries because they had the highest rates of deaths in road traffic crashes in the UNECE region; rapid motorisation in those countries has led inevitably to growing road safety problems. Key traffic safety risk factors common to all these countries are, notably, speed, drink-driving, lack of use of seat belts and helmets, and the inadequacy of road and health infrastructure. Poor traffic law enforcement and low risk awareness amongst road users were also common. Furthermore, relatively recent political changes in many of the countries have necessitated a reassessment of the way that road safety is managed.⁷⁰

More positively, the participating countries acknowledged that road safety is a social, economic and development issue. Improving infrastructure, education and enforcement are high-cost measures, but they are the key to improving road safety. Governments may have a primary role in creating safe road traffic conditions through legislation, but they also need to optimise their expenditures. Reducing the number of road casualties leads to reduced costs for the whole of society, and the national-level participants recognised that political will and commitment are needed to secure funds and properly address the main road safety issues.

Good national statistics based on reliable research was seen as the essential first step in establishing campaigns to improve road safety. Countries would be able to lean on the institutional framework provided by the UN Road Safety Forum and the Working Party on Road Traffic Safety,⁷¹ and draw on resources such as the UNECE Glossary and database on road traffic accidents. However, there would need to be follow-up activity and technical assistance would be required by many countries before results become apparent. Other international organisations could become involved in supporting future activities.⁷²

Following the two primary meetings in Minsk and Halkida, UNECE organized follow-up events in November 2009. Experts from twelve low and middle income countries participated in a seminar-cum-study tour in Sweden, arranged in cooperation with the Swedish Road Administration. A national road safety seminar was held in Bishkek, Kyrgyzstan, for representatives of eleven agencies involved in road traffic safety on development of national road safety strategy, goals, targets and indicators.

There is growing recognition across the world of the potential for setting road-safety targets as part of an effective road safety strategy. It is now established that targets at regional or national level can give focus and impetus to road safety activity. Over the last thirty years many high-income countries have achieved substantial reductions in road traffic deaths and injuries through sustained commitment to well-targeted, evidence-based injury prevention programmes. In several of these countries there has been progressive alignment of road safety with other societal goals in a bid to reach safety standards common in transport sectors such as aviation.

As presented to the project participants, the basis of the strategy for reducing road traffic casualties (and especially fatalities) is the setting of realistic and achievable aspirational or empirical targets. The seminar and

70 In the countries that attended the Minsk seminar, road safety was usually the responsibility of the Traffic Police, whose primary focus was on enforcement and education. The countries of South Eastern Europe had more diverse organisation with police, Interior Ministry and Transport Ministry involvement.

71 The road safety work in UNECE started with the establishment, in March 1950, of the 'Ad Hoc Working Group on the prevention of road accidents'. The work has been carried out subsequently by the 'Group of Experts on Road Traffic Safety' (GE.20) and since 1988 by the Working Party on Road Traffic Safety (WP.1).

72 Particular mention was made of support from Global Road Safety Partnership (GRSP) and the International Road Assessment Programme (iRAP).

conference heard that target setting was being considered or had already taken place in some countries,⁷³ but an approach integrating empirically derived (evidence-based) casualty reduction targets with a strategy for delivery was usually not yet in place. When setting targets, their (quantifiable) effectiveness should prevail on any other consideration, to the maximum extent possible.⁷⁴

One of the objectives of both the seminar and the conference was to introduce the concept of the so-called “Safe System” approach: that it is neither necessary nor acceptable to continue the remorseless loss of life that can accompany motorisation. This approach⁷⁵ demands a radical shift towards innovative thinking about how to design ‘forgiving’ infrastructure, improve vehicle safety for those both inside and outside the vehicle, and effectively reduce traffic speed. With the “Safe System” approach, the ultimate goal – fatality-free road transport networks – is increasingly feasible.

Because so much of the implementation of road safety measures takes place at a country level, where detail is of great importance, the project Summary Report,⁷⁶ as well as its Terminal Report, are essential further reading for anyone directly involved or interested in the country-level delivery of the project’s outcomes.

WHY SET ROAD SAFETY TARGETS?

- **Road safety targets may be aspirational or empirically based.**
- **Targets contribute to making the world’s roads safer.**
- **Road safety performance is improved through setting ambitious casualty-reduction targets and adopting a safe system approach.**
- **Targeted road-safety programmes have increasingly been the approach taken in many OECD countries since the late 1980s.**
- **Setting targets communicates the importance of road safety.**
- **Targets motivate stakeholders and increase accountability for achieving results.**
- **Targets convey the message that the government is serious about reducing road casualties.**
- **Sub-national targets widen the sense of ownership by creating greater accountability, establishing more partnerships, and generating more action.**
- **Targets raise media and public awareness and motivate politicians to support policy changes and to provide resources.**
- **Countries with targets had 17% lower fatalities than countries without targets.**

⁷³ Road safety targets already exist at regional level: within the UNECE region, 36 out of 56 Member States have targets. European Union (EU) and European Conference of Ministers of Transport (ECMT) have set targets to reduce fatalities by 50% by 2010 and 2012 respectively.

⁷⁴ The Joint OECD/ECMT Transport Research Centre report: *Towards Zero: ambitious road safety targets and the safe system approach* (OECD 2008) describes the ‘necessary fundamental shift in road safety thinking to achieve long term very ambitious targets.’ The findings of this report provide the framework for the recommendations of the project report.

⁷⁵ The underlying rationale of a ‘Safe System’ is that road users should never be subject to impact energy levels that are sufficient to cause death or serious injury.

⁷⁶ United Nations Economic Commission for Europe: *Summary report on the implementation of the project Improving Global Road Safety: setting regional and national road traffic casualty reduction targets*, October 2009. Funded by the United Nations Development Account.

Relevance and Effectiveness

The project has been instrumental in raising road safety awareness and encouraging countries to set and achieve road safety targets throughout the world. With the wide variations in incomes and fatality rates within the UNECE region, the project was seen to be as relevant in the UNECE region as in regions where there is an overall lower level of development.

In the UNECE region, the focus was on best practice including the recommendations of the OECD 'Towards Zero' report, and the experience of 'successful' countries. There was a recommendation for the seminars to be followed up with advisory missions to assist with assessment of road safety problems and development of targets. This important recommendation emphasises the action needed to ensure that the project will have real impact.

The project's relevance to the continuing development of the international framework can be seen in the particular recognition given by the General Assembly to 'the work of the United Nations regional commissions' and, in this context, the Assembly welcomed 'the conclusions and recommendations of the UNECE-led project "Improving global road safety: setting regional and national road traffic casualty reduction targets" implemented by UN Regional Commissions to assist low-income and middle-income countries in setting and achieving road traffic casualty reduction targets.'



Road safety can also be seen as an important 'cross cutting' issue

which can contribute significantly to the achievement of the Millennium Development Goals. Capacity building in road traffic injury prevention should be fully integrated into national development strategies for transport, environment and health, and supported by multilateral and bilateral institutions through a better aligned, effective, and harmonized aid effort. The Global Road Safety Facility established by the World Bank is the first funding mechanism exclusively designed to support capacity building and provide technical support for road safety at global, regional and country levels.

Sustainability and Replicability

In all the United Nations regions it is planned to replicate or continue some of the activities of the project. In the UNECE region, a further series of regional training events along the lines of the successful Swedish seminar-cum-study tour could bring together groups of countries with similar problems for intensive workshops with limited resource demand. Sweden has already developed bilateral projects with several low and middle income countries participating in the project. A further example of sustainable achievements was provided by the seminar held in Kyrgyzstan, at which the representative of Turkey invited five Kyrgyz senior experts involved in road safety to Turkey for a training programme.

Other cumulative road safety events took place during 2009, such as the International Conference on Road Safety at Work, held in Washington, D.C. in February 2009 and the Road Safety at Work conference held in June 2009 in Dublin, Ireland, which highlighted the importance of fleet safety and the important role of the private sector in addressing driving behaviour concerns among their workers.

The results and recommendations of the project were submitted to the First Global Ministerial Conference on Road Safety: Time for Action, held in Moscow in November 2009,⁷⁷ which promulgated the Moscow Declaration on Road Safety. On 2 March 2010, at its sixty-fourth session, the United Nations General Assembly approved the Russian Federation's resolution: Improving global road safety,⁷⁸ The Resolution declared a worldwide Decade of Action for Road Safety, with a goal to 'stabilize and then reduce the forecast level of road traffic fatalities around the world by increasing activities conducted at the national, regional and global levels.'

Vehicle safety standards are also form part of the campaign. Make Roads Safe has clearly articulated the challenge to the car industry: 'Vehicle manufacturers have a responsibility to produce safe cars. They must meet this obligation, in every market.'⁷⁹ In a message issued on 21 November 2010 to commemorate the World Day of Remembrance of Road Traffic Victims, the Secretary General Secretary Ban Ki-moon highlighted the "proven, simple measures" that need to be implemented if millions of lives are to be saved during the Decade of Action.

⁷⁷ Moscow, 19-20 November 2009.

⁷⁸ A/RES/64/255 (2010).

⁷⁹ 'The Decade IS Action', The Campaign for Global Road Safety quoted – inter alia – in a presentation by Mr. Bernard Tay, Chairman, Automobile Association of Singapore (co-sponsor of the UN Resolution A/Res/64/255).

Investing in the future

(by Mr. Fred Romig) ⁸⁰

In March 2000, the United Nations Fund for International Partnerships (UNFIP) and the United Nations Economic Commission for Europe (UNECE) launched a major project on “Energy Efficiency Investment Project Development for Climate Change Mitigation” in selected Eastern European and CIS countries: Belarus, Bulgaria, Kazakhstan, Russian Federation and Ukraine. Originally designed to run until 2003, the project was extended first until 2004 and then again until September 2005.

The project conclusively demonstrated that it is possible to identify, develop and finance energy efficiency and renewable energy investment projects that will reduce greenhouse gas emissions in Eastern Europe and the CIS. However, it has also shown that this is a time-consuming and labour-intensive process that needs to become much more fluid or ‘business-as-usual’ in order to succeed on any meaningful scale.

At the time when the project was approved, energy efficiency initiatives in Eastern Europe faced endemic difficulties of limited information and an almost total lack of necessary skills. The investment climate, too, was distinctly unfavourable for energy efficiency investments in most participating countries. However, in the past few years, national governments, with international support have begun to develop both the policy reforms and financial engineering skills for energy efficiency investments in Eastern Europe.

In their transition from the era of central planning, Eastern European economies suffered from low productivity and living standards, as well as from the hangover of institutional inertia. Inefficient energy use was both a cause and a symptom of economically unviable policy priorities. Though energy managers may have had the technical skills to select, install and maintain the technology, they often lacked expertise in preparing and submitting bankable energy efficiency projects for financing. Similarly, decision makers had insufficient experience to give them the confidence to promote energy efficiency investments, and policy makers were reluctant to consider such investments without a dedicated source of project finance accompanied by a network of committed international partners to advise and encourage them.

By 2005, economic output in Eastern European and the CIS was growing at between 5 to 12 per cent



80 Former Director of the Sustainable Energy Division

annually and foreign direct investment increased. The reform of energy prices and subsidies were by then on the macro-economic agenda in all of the countries. A study by the European Commission estimated that the market for energy efficient technology in Eastern Europe was over USD 200 billion. But the capital investment requirements needed to tap this potential were so large that it required the participation of the private sector in financing these projects. This market needed to provide opportunities for the commercial sector to make the necessary large investments with adequate returns at acceptable risk within a reasonable period of time.

The project showed that the capacity to finance energy efficiency investments coupled with the required reforms could open up a vast market in Eastern Europe and the CIS. The technical potential in Eastern Europe for projects with a payback period of less than five years was estimated to be between USD 5 and 10 billion. It also showed that the participation of the private sector requires the formation of a market for energy efficiency and renewable energy in Eastern Europe and the CIS.

The long-term goal was to promote an investment environment in which self-sustaining energy efficiency projects could be identified, developed and implemented by local teams in municipalities or in energy efficiency demonstration zones. The project has had three immediate goals to produce measurable results initially over a three-year period:

- Develop communications and skills in 15 locations in the private and public sectors at the local level to identify, develop, finance and implement energy efficiency projects in municipal lighting, hospitals and district heating plants.
- Strengthen energy efficiency policies in the five participating countries, assisting municipal authorities and national administrations to introduce economic, institutional and regulatory reforms needed to support investments in energy efficiency projects.
- Promote opportunities for commercial banks and companies to invest in energy efficiency projects.

Measurable results were obtained against all three of the project goals. On a quantifiable basis, the project met or exceeded its benchmarks. The overall evaluation focuses also on qualitative results of the project, believing that this may be more instructive to the organizations that funded the project, and to those who wish to apply the results of this project to future efforts.

In establishing a network of energy efficiency managers, the project helped the participating countries achieve a critical mass of expertise in disseminating value-added information. Local teams in twenty-two municipalities developed some sixty business plans for investment projects. Online networking capacity was enhanced, partly through a well-used Project Website (ee-21.net) which recorded over 2 million hits consulting 25,000 files in May 2005 alone. A Website Survey received approval ratings of more than 90 per cent. National coordinators set up websites in Belarus, Bulgaria, Kazakhstan, Russian Federation and Ukraine. These networks in turn leveraged the impact still further: in Bulgaria, the network linked fifty-four municipalities and six regional associations accounting for two-thirds of the Bulgarian population. The Regional Network for the Efficient Use of Energy and Water Resources (www.reneuer.com) extends participation to Albania, Bosnia and Herzegovina, Croatia, Republic of Moldova, Montenegro, Romania, the Former Yugoslav Republic of Macedonia and Serbia.

Within the framework of the project, energy efficiency was seen as the most cost-effective method for governments to reduce greenhouse emissions, thereby mitigating the risks of climate change. The project helped promote energy efficiency and energy security onto the national agenda, and reinforced energy efficiency policies of the member states. One of the project's planned outputs was a study of energy efficiency

and security, conducted through three workshops and a conference attended by international experts that looked at projections for energy supply, demand, trade and investments in Eastern Europe and the CIS. The evidence was further strengthened by establishing energy efficiency demonstration zones that provided practical demonstration of policy reforms and energy efficient technologies on a limited scale. At least fifteen demonstration zones in the five countries were established by local authorities with the support of national ministries.

The technical studies and workshops assembled compelling evidence that governments can directly address climate change mitigation while keeping their primary strategic interest firmly in view: promoting energy security by enhancing energy efficiency. Recognizing the strategic potential in energy efficiency policy reforms, the heads of government of CIS Member States appointed experts to join forces with the UNECE Regional Adviser on Energy. Their commitment was formalized in 2002 in an international agreement on cooperation in the field of energy saving that was signed by ten heads of government of the CIS Member States. The formal Agreement is one of an extensive list of documents that have further disseminated the lessons learned.



An important project output was the production and publication of guidelines for the formulation and implementation of energy conservation laws for the five countries in the project. UNECE, in collaboration with UNESCAP, produced a "Guide for the Promotion of Energy Conservation Regulations in Economies in Transition" which had reviewed the energy conservation policies of national energy policies covering the Russian Federation, Kazakhstan,

Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. UNECE also produced a training course handbook on CD-Rom, on carbon emissions trading which includes software for calculating carbon emissions reductions from energy efficiency investment projects. The ECE Energy Series country reports that have been developed for the five countries involved in the project contain a wealth of information that can be useful in future activities. This is also the case for two other reports, "Financing Energy Efficiency and Climate Change Mitigation" and "Reforming Energy Pricing and Subsidies."

At the heart of the project, a series of multi-session courses in financial engineering and business planning trained 186 experts from among more than 350 participants over a thirty-month period. Workshops to train municipal lighting, hospital, and district heating system managers to become experts in project development, finance and business planning. This is an extremely challenging undertaking, yet critical to achieving the ultimate objective – reducing greenhouse gas emissions.

The local officials who operate these services are essential to convincing public officials to undertake a project to reduce energy consumption. Although these managers generally have a technical background, it often becomes their responsibility to determine the financial feasibility of an energy reduction project and to develop a business plan. Most municipal and other governments in Eastern Europe and the CIS do not

otherwise have this expertise. Consequently, training programmes such as those developed as part of this Project are a necessary component of any large-scale effort to implement similar projects. The training sessions held in Belarus resulted directly in the World Bank funding three of the projects for which business plans had been developed.

The courses generated some 61 pre-feasibility study investment project proposals, and led directly to the technical and financial clearance of 30 investment project business plans. Of these, 18 projects attracted leveraged finance of USD 14.9 million invested, with the capacity to save 136,300 tonnes of carbon dioxide per year – an average cost of USD 109 per tonne per year.

The financed projects range in value from USD 80,000 to convert the boiler in Krakolje Boiler Station from light oil to woodchip bio-fuel (Russian Federation) to USD 3.3 million for the reconstruction of the heat transfer pipelines in Pernik City (Bulgaria). Other projects in Belarus and Ukraine focus on installing better control gear in schools, hospitals and factories and improving street lighting by converting to energy saving luminaries. These results, and a mass of other valuable relevant data, have been widely disseminated by an extensive list of publications helping to fill information gaps for investors.

The project results were measured over a three-year period, and its stated planned goals have been consistently achieved and in some cases exceeded. This was recognised by the award in 2003 of the 'Climate is Business e-WARD 2003' by the e5 European Business Council for Sustainable Energy.⁸¹

Relevance

Global warming and climate change threaten every aspect of human habitation on the planet. Reducing man-made greenhouse gas emissions is essential, but needs to be part of a sustained shift in energy policy and security. In the UNECE region, CIS governments inherited a toxic mix of intensive industrialisation with high levels of inefficiency, contributing to some of the worst pollution globally. Investment in energy efficiency savings is not only an immediately accessible strategy with the capacity to deliver very rapid results but also the most cost-effective method of reducing greenhouse emissions to mitigate the risks of climate change. Success achieved in the CIS under these difficult conditions, even if it starts on a small scale, has lessons for other developed, and most developing, states. Mighty oaks from little acorns grow.⁸²

Key results of the project demonstrating this relevance are:

- 61 pre-feasibility business plans producing some USD 60 million of energy efficiency investment project proposals, which together could produce an estimated 531,700 tonnes of carbon emissions reductions per year.
- USD 14.9 million financing approved by the World Bank and other investors for projects in Belarus, Bulgaria, Russian Federation and Ukraine producing energy savings equivalent to an estimated 136,300 tonnes of carbon emissions per year.

Efficiency

The United Nations Foundation (UNF) provided a USD 500,000 direct grant to UNECE and offered USD 750,000 in the form of a 1:1 matching grant. The USD 750,000 cost-sharing commitments of eight UNECE

⁸¹ The e5 European Business Council for Sustainable Energy represents 120 companies for the renewables, energy efficiency, gas, telecommunications and public transport sectors. The award for a public sector project was made to the UNECE Energy Efficiency 21 Project on 11 December 2003 during the Ninth Conference of Parties (COP9) of the United Nations Framework Convention on Climate Change held in Milan, Italy.

⁸² A. B. Johnson, *The Philosophical Emperor a Political Experiment*, 1841.

co-financing partners achieved an immediate leverage of the initial UNF investment. The total budget of USD 2 million provided by the UNF and its co-financing partners has also returned significantly leveraged benefits from USAID and the US Department of Energy, the Norway Institute for Energy Technology, the Vekst Foundation and the Fridtjof Nansen Institute, both in Norway, and the Enron Corporation. The introduction of demonstration zones has stimulated other donors to fund similar programmes such as the UNDP-GEF⁸³ projects in Gabrovo in Bulgaria and Vladimir in the Russian Federation. The \$2 million budget, in turn, generated over \$60 million of potential investments and nearly \$15 million of actual projects.

Sustainability

In his 2003 Interim Report and March 2006 Final Report, Mr. Glen Skovholt, Monitoring and Evaluation Adviser to the Project, concluded that the project had “leveraged significant budgetary resources because of the co-financing offered by the UN Foundation and established key partnerships in the public and private sector”. It had been essential, he said, to “identify and develop bankable investment projects that offered genuine reductions in greenhouse gas emissions” and, in furtherance of this, “the project had provided demonstrable local examples of how such energy efficiency investments can be developed in the countries that could benefit most from financing mechanisms designed for carbon trading.’

Key results of the project demonstrating sustainability are:

- An extensive network of energy efficiency officials, experts, business and financial counterparts in 24 participating countries linked by the website www.ee-21.net.
- Some 180 experts trained in business planning and financial engineering for the development of energy efficiency investment projects by other experts who have successfully attracted financing to energy efficiency investment projects they developed;
- Carbon emissions trading techniques and work methods published on CD-Rom as the Carbon Emissions Trading Handbook;
- A Guide for Investors on financing energy efficiency and climate change mitigation projects providing carefully researched background and data on the business and investment climate in selected Eastern European countries;
- Five in-depth studies on the experience of multilateral institutions in promoting energy efficiency in economies in transition.

New projects in the original project area, and further fields, demonstrate the sustainability of the project outputs, particularly from the financial leverage standpoint discussed above.

Replicability

Once empirically proven on the limited scale of energy efficiency demonstration zones, the intention was to extend the energy efficiency schemes nationally throughout the participating Eastern Europe and CIS countries, and to replicate similar projects in other groups of countries.

⁸³ United Nations Development Programme – Global Environment Facility. For an appreciation of the scale of this leverage, UNDP’s GEF-funded projects, as of February 2009, amount to approximately USD 8.74 billion (USD 2.69 billion in GEF Grants and USD 6.05 in co-financing) representing over 570 full and medium-size projects as well as more than 370 enabling activities. The Small Grants Programme, which supports small-scale activities in GEF focal areas and the generation of sustainable livelihoods by non-governmental and community-based organizations in more than 119 developing countries, is worth another USD 738.7 million (USD 410 million in GEF grants and USD 328.7 million in co-financing).

While grants, loan guarantees and other financing schemes have an important demonstration value and help local partners to acquire the professional skills they need, only commercial sector finance on a suitable scale can actually deliver significant results and meet the investment potential for energy efficiency projects.

The genuine participation of the private sector in turn will require the formation of a market for energy efficiency and renewable energy in Eastern Europe and the CIS. This market will need to provide opportunities for the commercial sector to make large investments with low transaction costs that have an acceptable ratio of returns to risks within a reasonable period of time. The achievements of recent and continuing technical assistance projects in this field have established the framework conditions for an energy efficiency market with one important exception: there is still no adequate dedicated source of equity or quasi-equity finance, which is still the limiting factor that hampers the development of energy service companies (ESCOs) in these countries, an essential tool fostering the financing of energy efficiency and renewable energy projects.

Since 2008, UNECE has been implementing the 'Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation' (FEEI) project. The duration of the project is four years. The total budget is USD 7.5 million. Support for the project comes from Fonds Français pour l'Environnement Mondial (FFEM), the United Nations Foundation (UNF) and the United Nations Fund for International Partnership (UNFIP), United Nations Environment Programme / Global Environment Facility (UNEP/GEF) and the European Business Congress (EBC). Twelve countries of South-Eastern Europe, Eastern Europe and Central Asia are participating in the project. The project is designed to establish a public-private partnership investment for energy efficiency and renewable energy projects with a target capital of Euro 250 million and develop a pipeline of new and existing projects to be financed by it. The main objectives are as follows: (a) develop the skills of the private and public sectors at the local level to identify, develop and implement energy efficiency and renewable energy investment projects; (b) provide assistance to municipal authorities and national administrations to introduce economic, institutional and regulatory reforms needed to support these investment projects; and (c) provide opportunities for banks and commercial companies to invest in these projects through professionally managed investment funds.

For achieving these objectives, the project has established a network of National Participating Institutions and local experts who implement the project nationally and interact by means of advanced Internet communications. A comprehensive Regional Analysis of Policy Reforms to Promote Energy Efficiency and Renewable Energy Investments, which includes national case studies, has been completed and participating countries have started implementing its recommendations.