Turkmenistan environmental challenges and opportunities

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General issues about environmental situation

1. State of environment, challenges in different sectors of economy:
   - Energy
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   - Transport

Vulnerability of country

-Turkmenistan is higly vulnerable to climate change

-The effective adaptation to climate change impacts will depend largely on the development and diffusion of innovative and environmentally sound, i.e. “green”, technologies

Vulnerability to climate change in the country focuses on the following aspects:

--Increased evapotranspiration, accompanied with possible decrease of water availability

-- The central problem is increased water scarcity; climate change will reduce the amount of water available while at the same time increasing water demand;

--Coastal zones – the Caspian Sea is an economically important zone, where about 70 per cent to 80 per cent of the oil reserves are concentrated

--Preservation of soil and land resources, and natural ecosystems: flora, fauna, forests. Forests provide crucial environmental services, by helping with the regulation of several ecosystems.

Energy

State

The energy sector is virtually the only opportunity for sustainable economic development.

-The production and export of gas and oil can cause severe damage to the environment.

-The emissions from the oil industry account for 75-80 per cent of total national emissions of pollutants. The increase of greenhouse gas emissions is primarily due to the growth of energy consumption.

- the Caspian Sea environmental issues, is under special attention.

Energy

Challenges

-Reductions in current energy intensity can be made in production and energy supply expenditures of society as a whole

-Implementing advanced technologies for power generation and distribution

-A certain potential for wind and solar energy production, which could be used in order to promote sustainable development, should be developted more actively.

-Develop a strategy on development of renewable energy for the period until 2030

Water management(1)

Current state:

-Water resources and their management is key issue from many point of view.

- Turkmenistan lacks constant surface water flow.

-Till 2030, due to climate change there will be serious decrease with rever flows- the Amu Darya river flow will decrease by 7-12 per cent, for other rivers: Murgab, Tedjen and Atrek – by 5-8 per cent.

-Water resources in Turkmenistan remain scarce.

-Almost 90 per cent of water resources go to irrigation

Water management(2)

Current state

-Water supply and sanitation situation is in moderate level.

-water supply and sewage network were mainly constructed in the period 1970-1980,

- Water losses are more than 50 per cent of total water due to the use of ineffective irrigation systems,

-Water quality of surface water is mainly moderately polluted

Water management

Challenges

-renovation of water and sewage pipelines , constuction of new pumping stations, and water purification stations, adequate wastewater treatment in smaller towns as well

-develop the use of leakage detection technique, inpipe technique

-adequate water meters for water supply systems and canal systems as well

-water-saving irrigation techniques, minimize leakage in canals, use innovative solutions in irrigation

-whole water management more close to cost recovery principle, water economy as outcome of different Governmental Plans

Water sector reform elements in many new EU states

I phase of reforms starting from 1990

- Keywords:
  - Regaining independence and establishing market economy
  - Establishing ownership rights
  - Privatization
  - Elaboration of new legislation

II phase of reforms starting from 2000

- Keywords:
  - Becoming a the EU member state
  - Harmonisation of national legislation
  - Sustainability of water services
  - Involvement of stakeholders and the public

Main focus areas:

Legislation	Infrastructure	Financing

Changes in water infrastructure many new EU countries

1. **The ownership of infrastructure/water companies**
   - State owned → state owned company → municipally owned → municipally owned company (private company, exceptional)
   - For the RBM → grouping of municipally owned companies
   - Special requirements needed for companies providing water services, in order to ensure the quality and sustainability of services
2. **The technical state of infrastructure**
   - Old, smetimes 20-30 years old infrastructure for collection and treatment of urban wastewater, not sufficiently covered with collection possibilities
   - for drinking water , situation with network was better , but qualitu not always
3. **Upgrading the infrastructure**
   - Every municipality dreams of becoming a new capital of country-important to determine priorities for country
   - Feasibility studies should be carried out in a river basin scale instead of municipality
4. **The price of water**
   - The price of water should consider the consumer capabilities and needs for investments
   - Third party price regulator or legally binding price mechanism may be/should be used , instead to municipality

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Changes in water prices and water consumption-in Estonia

Investments into water infrastructure, Estonia

2004-2013 we implemented more than 630 small and big water infrastructure projects, with total investment volume 1045 MEUR.

Today for 90% of inhabitants there is avalilable safe drinking water corresponding to all requirements,

during that time we add some 420 inhabitants to water supply and sanitation systems, but we still follow with those works

Agriculture and land

State

Agriculture is an important sector of the economy,

GDP in 2004, 20.9 in 2005, 12.1 in 2008, 11.5 in 2009 and 10.2 in 2010.

Almost 70 per sent of country territory(about 33,9 million ha) defined as agricultural land about 1,7 million ha is under irrigation

The main environmental issues are :

-the degradation of the vegetative cover of pasture land inducing wind erosion and sand drift in the desert and

-water erosion in the mountains,

- salinization of irrigated lands,

- waterlogging of desert ranges.

salinization and waterlogging has increased up to 50 per cent of irrigated land

Agriculture and land

Challenges

-revision of methods used for the utilization of irrigation water, use of irrigation technique

-Improving water management

-modernization of hydraulic engineering structures

-developing incentive tools for stimulating rational water consumption

- specialization of agricultural production; conducting selection work to breed drought-resistant and salt-resistant crops

Waste management

State

-The oil and gas sector is the main generator of industrial waste, generating about 90 per cent of all registered industrial wastes.

-Municipal solid waste management in Turkmenistan - solid waste generation on the territory of Turkmenistan of 470,500 tons/year (ca. 1,300 t/day)- year 2000? Today-? Should be 3x more?

-Municipal solid waste is treated also by a mechanical biological factor

Waste management

Challenges

-Industrial toxic waste, there is need to develop relevant waste incineration facilities together with suitable industry

-For municipal waste the waste sorting and disposal systems, appropriate information should be developed futher

-Important is to organize awareness rising activities among the Turkmen population, introduction of municipal and industrial waste utilization/recycling technologies

-Waste composting may be important as well, specially for planting activities

Waste management

Example of waste sorting and Packaging Deposit system in Estonia

Hesitation on introduction of the Deposit system?

pre-condition to keep refillables on the market and to avoid packaging waste

- expectation of major part of the population, that a '*normal situation will be restored and some money will be paid for bottles again*'

In 2003 the Ministry of the Environment ordered a study, to evaluate related costs for producers.

The estimation was rather exact, although prior to launch, several practical questions where yet unsolved.

The deposit system was launched on 1.07.2005, based on the Packaging Act (2004).

Coverage of the deposit obligations

Product groups:

beer, low alcohol beverages (≤ 6%), cider, perry, soft drinks (incl. water)

AND Packaging materials:

If packed in plastic bottles, metal cans and glass bottles – both refillable and one-way packages are covered

Examples: packages of the juice in PET bottle or metal can, still water in PET, non-alcoholic wine in glass bottle, etc.- **should have** deposit

Milk in PET bottle, juice in drink-carton, 'alcohol cocktail' **> 6 %**

In metal cans **should not have** deposit

The 'border' set by the product groups is easier to implement and monitor, although creates still some logical questions.

For example, why the cider has (priced up to 5-10 €) deposit, but not all wines do?

Answer : because these belong to different product groups

Retailers handling fee (take-back compensation)

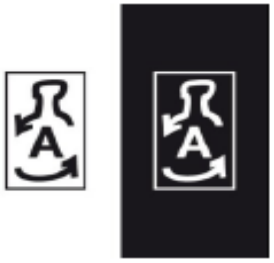
EPP pays all retailers a handling fee to cover the direct costs related to take-back and handling of non-refillable deposit packaging. This amount depends on the manner of accepting returned packages (manually or automatically by RVMs):

- Manual collection **0.0086 €** per packaging unit plus VAT (all types of packaging);
- RVM collection without container compression **0.0192 €** per packaging unit plus VAT (all types of packaging);
- RVM collection with container compression **0.0269 €** per packaging unit plus VAT (all types of packaging);

Unredeemed deposits, and the income from the sales of the packaging material, are used to finance the EPP activities and investments of the deposit scheme.

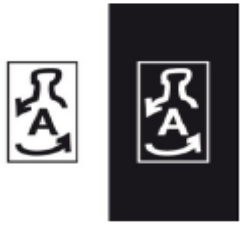
← compressed and non-compressed metal cans

Deposit Marking – could be printed on packaging, but could also be added as sticker, often carrying also product information in the official language



Deposit rates

0,08 € for glass, plastic (PET) > 0,5 l



0,04 € metal cans, plastic until 0,5 l incl.

High or Low?

Views differ, but are generally accepted

Deposit rates adopted by the Minister of the Environment are **based on** the proposal of the Producers

Deposit system – results

Initial starting investments – ca 4 M€ (counting Centre etc)

ca 550 RVMs so far (Reverse Vending Machines) – by Retailers ca 8 M€ - covered with 'take back compensation'

Deposit system – results

Return rates on one-way pack, also refillables, ca 90%

On 2011, ca 13 th t of high quality packaging materials were collected (does not include refillables, as those are returned directly to the fillers).

Deposit packaging forms ca 10 % of the whole amount of packaging put on the market.

From the all recovered packaging makes it ca 15 %

Yet, this is 100 % consumer packaging, which is most costly to collect in container sytem.

Take-back obligations for retailers

Amendments to the Packaging Act 2008 came to force in 2009

retailers **> 200 m2 take back mandatory** on retailer shop area

retailers **200-20 m2** – with the agreement of local municipality **could be organised outside, ie. in another take-back point**

retailers **< 20 m2** – no take-back obligation

Take-back could be organised manually or through the RVM, this is a retailers choice as retailers also buy and install RVMs (not the EPP).


Counting Center of a Deposit system


Counting Center of a Deposit system
ELEIKO
SANERA
Petimeter


Material Quality issue –
Deposit packaging PET


Glass Deposit system
good quality, 100% recycling

Lessons

Deposit system is effective, well understood by consumers, and is proven in Estonia even as a cheaper solution for drink packages.

- The Non-Profit nature is important as a structure of Deposit Organisation (Company), allowing to take 'on board' all parties involved

- Retailers do not welcome deposit system, however take-back in retailer shops is actually unavoidable - and by reasonable take-back compensation and normal logistics not a real burden for them

- Quality of materials for recovery is remarkably better, as is the recovery rate, in comparison with the container collection

-**Deposit system clearly helps to reduce littering**

Forestry and biodiversity

State

-Turkmenistan has a wealth of experience in afforesting of desert areas

-Contribution of forests to environment protection and the maintenance of the ecological balance is widely recognized

-The country uses several techniques to manage desertification

-Turkmenistan is rich in biological resources, including over 20 000 species of flora and fauna

Challenges

-The establishment and proper management of state protected natural reserves and significant areas of planted forests should continue

-Integrating biodiversity management objectives into economic sector activities

-Development of national parks and introduction of alternative sustainable financing arrangements

-Applying technical measures for expanding the forest coverage.

Tourism

State

-New developing sector, based on historical and cultural heritage
-Unique nature if country
-Caspian coastal zone, tourist zone “Aivaza”

Challenges

-Improve tourist services, communications, relevant infrastructure
-Develop the availability of recreational resources
-Use latest energy saving technologies

Industry

State

-Main areas are: electric energy sector, oil and gas production and oil refinery sector

-Chemical and pertochemical sector and cement industries play an important role.

-Growth in intensive power generation causes increased greenhouse gases

-Unsufficient economic and financial incentives

Challenges

-Introducing modern methods tecnologies in main directions on industry

-Developing a system of sustainable use of energy resources and products through strategic price formation

-Promoting flare system modernization, introduction of new machinery and technologies for associated gas utilization in the oil fields

-Reducing leakage and skipping on main oil and gas pipelines

Transport

State

-Transport and communication is represented by automobile, air, railway and water transport.

-Considerable increase in motor vehicle quantity and intensive growth of heavy-tonnage transportation will lead to the intensive growth of petroleum and diesel fuel consumption

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Thank you !