

B Case study Mongolia: Healthcare Waste Management (HCWM)

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B.1 Background and Objectives

Healthcare waste is generated from hospitals, clinics, health posts, general practitioners, nursing homes, dentists, veterinary practices, laboratories and research establishments and as a result of midwifery and medical care at home. Most of the waste can be managed in the same way as municipal waste provided that the waste is properly segregated and separated from the hazardous waste.

The balance (normally 10-20%, depending on size and type of the healthcare facility) might be contaminated with pathogens, chemicals, body fluids or other potential hazardous components and must be handled as hazardous waste. Following the precautionary principle, sharp items such as needles and scalpels and blood contaminated waste is considered in many countries as biohazardous waste. A small fraction of the waste may pose a physical or radiological hazard. The disposal of body- and organ parts, e.g. from pathology and operational sectors, must be accomplished under ethical, aesthetic and religious criteria. The amount of hazardous chemical waste and pharmaceutical is relatively low but need safe management if created.

Mongolia is a landlocked country, located in northern Asia and bordering China to the south and Russia to the north. With about 1,564,116 km², it is after Iran the 19th largest nation in the world by area, but with 3,133,318 inhabitants it is ranked only on place 134 in the international population censuses. With a GDP per capita of US\$3,600 (2010 est.), Mongolia is ranked in the country comparison of the world at place 162, but due to an existing growing rate of >6% p.a. and Mongolia's extensive mineral deposits (copper, gold, coal, molybdenum, fluorspar, uranium, tin, and tungsten deposits) and fast increase of the GDP is expected for the next decade. In the next coming years, it's further forecasted that the urbanization rate in Mongolia will continuously grow by nearly 2% p.a., in 2010 this rate was already 62%.

Mongolia is party to several international agreements, including the Climate Change-Kyoto Protocol, Ozone Layer etc. and joined "The Basel Convention on the Control of Transboundary Movement of Hazardous Wastes" in 1996, "Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade" in 2001 and "Stockholm Convention on Persistent Organic Pollutant" in 2004.



Pic: The yurt (Mongolian: Ger) is the traditional dwelling of the nomads in Mongolia © ETLog Health, 2010

While in the past healthcare waste management received only low attention in Mongolia, this changed enormously during the last years. Awareness raising activities among stakeholders on the risk created by healthcare waste management resulted in a willingness to start change processes. The importance of these activities were underlined by a study from the World Health Organization which showed very high prevalence of hepatitis B and C among

health workers in Mongolia (above 50% in some surgical departments), pointing to a breach in healthcare waste management safety.

B.2 Approach, Achievements and Results

Since 2008, several key-activities in the field of healthcare waste were carried out in Mongolia and the National Action Plan (NAP) on HCWM was endorsed in September 2009. With the increasing urbanization (About 1/3 of the population is living in the capital Ulaanbaatar) and the steadily raising of the healthcare waste production, new strategies were needed for different subjects which covered the key areas of hospital waste management. These included but were not limited to:

- A) National treatment strategy & concept for healthcare waste
- B) Concept for a National training & capacity building system on healthcare waste
- C) Standards for the collection and transportation of bio-hazardous waste
- D) Adapted contracts, pricing & tariffs for healthcare waste
- E) Standard healthcare waste management equipment packages for hospitals of different level (primary, secondary and tertiary level)
- F) Occupational health & safety guidance related to healthcare waste, especially considering injection safety demands
- G) Planning, design and operation strategies for central operated healthcare waste treatment facilities using advanced, alternative technologies



Pic: Primary level healthcare facility (Erdene Soum, Mongolia) © ETLog Health, 2010

The safe management of healthcare waste is a complex issue and needed an integrated and comprehensive approach. Under the leadership of the Ministry of Health and in cooperation with other line ministries, e.g. the Environment Ministry, and the World Health Organization (WHO), the future strategies for the safe management of healthcare waste were developed.

The Ministry of Health issued the Ministerial Order 293 „Strategy for Improving Healthcare Waste Management in Mongolia“ on 09 Sep 2009. This strategy provided recommendations for healthcare waste management and treatment strategies. For the treatment of bio-hazardous waste, the use of non-incineration, sterilization technology (decontamination of the waste by steam or chemicals, e.g. autoclave or microwave systems) was chosen, taking into account Mongolia's commitment to the implementation of Stockholm Convention on Persistent Organic Pollutants and other international treaties/conventions and [WHO policy](#) on safe health-care waste management.

The national strategy and action plan on HCWM and a Manual on safe handling of infectious wastes was published and distributed to all Province Health Departments and hospitals. To

raise the awareness on the subject, national and local training workshops were conducted by the Ministry of Health which included the dissemination of the national strategy and the action plan on HCWM to health managers, family practitioners and other sector staff in 2010. After an awareness raising period on healthcare waste of about one year, future strategies and needs were discussed a national workshop in cooperation with WHO. As outcome of this workshop, two new ministerial orders to further clarify management aspects on healthcare waste were issued in spring 2011.

The awareness raising on governmental and hospital level conducted by the Ministry of Health achieved that the development of the healthcare waste system is considered today as an integral part of the environmental system for the healthcare sector. Within three years (2009 to 2011) strong achievements have been made.

The central part of the national healthcare waste implementation strategy is the coordination of healthcare waste activities and other related projects (e.g. out-phasing of mercury in the healthcare sector, improvement of infections safety), which are financed by the Government and the donor community. This strategic donor coordination, carried out by the MoH in partnership with WHO, avoided the overlapping of projects, so funds were used more efficiently and synergies between the different projects could be achieved.



Pic: National workshop on healthcare waste by WHO (Ulaanbaatar, Mongolia) © ETLog Health, 2010

A central facility for the treatment and disposal of healthcare wastes was established in Ulaanbaatar City and waste treatment equipments (autoclaves, shredders, etc.) were procured for the cities Darkhan and Erdenent and for the Erdene primary hospital in Tuvaimag, which also functioned as pilot facilities.

During the implementation and start-up of these pilot facilities, important lessons could be learned and were applied to spread the healthcare waste management activities and to set up healthcare waste systems in about 80 primary and secondary level hospitals in Mongolia.

Until 06/2011, up to 66 Soum hospitals and 5 Aimag hospitals located outside of Ulaanbaatar were addressed in the national plan and more will be included in the coming years until healthcare waste is comprehensively managed national wide in Mongolia.

In 2012, within the fifth health sector development project financed by ADB, it is planned to include remaining healthcare facilities (especially from the secondary level) and the blood-banks of Mongolia.



Pic: Vehicles for the collection of biohazardous healthcare waste (Ulaanbaatar, Mongolia) © ETLog Health, 2010

Following the developed national capacity building strategy, master trainers for healthcare waste were trained in 2011 (financed by the Millennium Challenge Account, USA) and the implementation of the national training program started. Healthcare waste management system inside hospitals for the segregation, collection and storage of waste were established and will be further improved in the next years to continuously reduce risks for patients, staff and the public. The achievements from the different activities are regularly reviewed and plans to include so far missing healthcare facilities are developed.

The new central treatment plant in Ulaanbaatar is installed and in operation. A tariff system was developed and the hazardous waste from the majority of hospitals is collected and treated. By choosing steam based treatment for the treatment of biohazardous waste, the production of emissions were reduced. Weak points in the transportation system were identified and are currently eliminated.



Pic: Installation of autoclaves (Ulaanbaatar, Mongolia) © ETLog Health, 2010

If the development will continue a current pace, the a sustainable working, nationwide healthcare waste management system is established within the next 5 years in Mongolia.

B.3 Conclusions and Lesson learned

The example of Mongolia shows that substantial and sustainable improvements for a specific waste stream needs a holistic approach and can not be reached by a single project only.

Donor coordination and the long-term vision of the beneficiary country are crucial.

The key to success is a committed and responsible National authority which is willing to initiate change processes and is able to coordinate different donors, activities and projects.

The main tool for this is a national, strategic development plan for the specific waste stream. Awareness raising activities and studies on the impact of unsafe waste management can act as a driver for these change progresses.

B.4 Links and Materials available

Guidelines:

- Resource materials available from the World Health Organization:
www.healthcarewaste.org

- Policy Paper of the WHO on "Safe health-care waste management"
http://www.healthcarewaste.org/fileadmin/user_upload/resources/WHO-HCWM-policy-paper-2004.pdf
- Technical Guidelines on the Environmentally Sound Management of Biomedical and Healthcare Wastes (Y1; Y3):
<http://www.basel.int/TheConvention/Publications/TechnicalGuidelines/tabid/2362/Default.aspx>
- Further materials can also be requested by: International Solid Waste Association - Working Group on Healthcare Waste:
http://www.iswa.org/en/169/working_groups.html

On Mongolian Regulation and Health Care System:

- Ministerial Order No: 179 (2011/05/31): Regarding the approval of waste facility and equipment guidelines of healthcare organizations
- Ministerial order No: 158 (2011/05/03): Regarding the approval of guidelines to classify, collect, store, transport, sterilize and dispose the waste from healthcare organizations
- Ministerial Order No. 293 (2009/09/09) „Strategy for Improving Healthcare Waste Management in Mongolia“ on