

United Nations Environment Programme
World Health Organization

Promoting the 'phase down' approach of dental amalgam in developing countries

Project Document

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Project Justification

Dental caries is a major public health problem globally. Despite much effort in health promotion and disease prevention, dental restorations are still needed. Dental amalgam, a restorative material that contains mercury, has been widely used for some 150 years. Dental amalgam use represents one-fourth of total global mercury consumption in products or approximately 8% of global mercury consumption. In 2007, an estimated 250-350 metric tons of mercury were used globally in this sector. In the past decades, the awareness and recognition of the environmental implications of mercury have increased and development and use of alternative materials for dental restoration has become increasingly important.

Jointly with the World Health Organization (WHO), the United Nations Environment Programme (UNEP) has strengthened the work to reduce risks to human health and the environment from the use and release of mercury. UNEP is supporting the work of the Intergovernmental Negotiating Committee established to elaborate a legally binding instrument on mercury. The mandate of this committee is set out in UNEP Governing Council decision 25/5. In seeking to reduce mercury use and release, the treaty may have implications on the delivery of oral health care worldwide.

In 2009, a World Health Organization meeting was held in Geneva to highlight the future use of materials for dental restoration. The meeting emphasized that the use of dental restorative materials depends on several factors, particularly the size and the site of the carious lesion, the type of teeth, resistance and wear, and durability of materials. The meeting recognized the need to strengthen research into the long-term performance, possible adverse effects, and viability of alternative materials. Moreover, the appropriate infrastructure for delivery of optimal dental care and effective distribution systems relevant to use of dental materials remain important challenges to developing countries.

Strengthening disease prevention and health promotion is the most relevant approach to reduce the need for restorative care and it may be prudent to consider 'phasing down' instead of 'phasing out' of dental amalgam at this stage. The WHO meeting suggested important strategies that can be put in place while waiting for new materials to be developed and become available for public health care. Notably, some countries require systems for waste management to prevent release of mercury to the environment.

In order to encourage this phase down approach, the health sector has a critical role in promoting professional best practice and promoting preventive dental care. In many developing countries, dental amalgam is the dental restorative material preferred by dental practitioners and their patients. Dental clinics will therefore continue to have to deal with amalgam waste from dental care. As a result, the sector will need to promote measures to reduce environmental releases of this amalgam.

Project Objectives

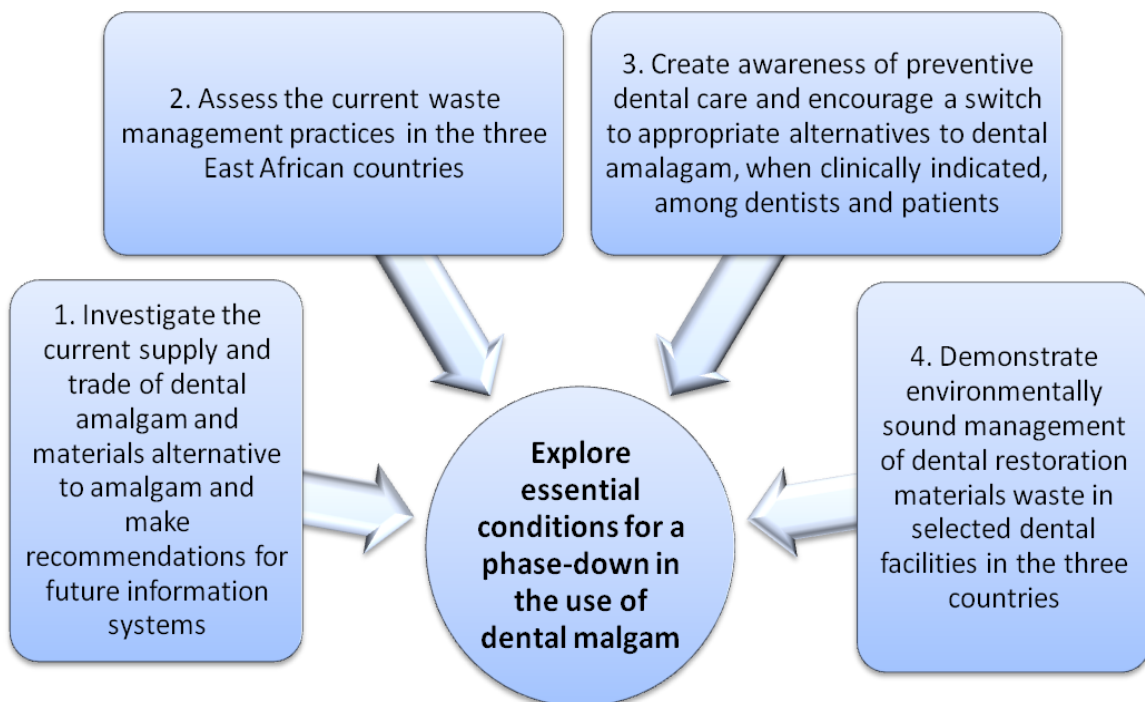
UNEP and WHO are initiating demonstration projects to phase down dental amalgam in different Regions of the world. This project considers three Anglophone countries of Africa: Kenya, Tanzania and Uganda.

The proposed project will deal with those stages of the life-cycle of dental amalgam pertinent to UNEP's mandate in particular its potential for environmental release during trade and supply; its environmental release from dental clinics, and its environmentally sound management as waste.

Strengthening of oral health promotion and disease prevention activities will be initiated under WHO guidance. In clinical dental care, available alternative materials may be recommended for dental restoration provided pure clinical indications or criteria, and a positive response from the patient.

The project will be undertaken by UNEP Chemicals and the WHO Global Oral Health Programme, in coordination with the UNEP Regional Office for Africa, WHO Regional Office for Africa and the respective WHO country Offices, representatives of the national dental associations in the three African countries, the World Dental Federation (FDI), the International Association of Dental Manufacturers (IDM), and other NGOs. Both UNEP Chemicals and WHO Global Oral Health Programme are the overall coordinators of this project.

The objective of this project is to explore essential conditions for a phase down in the use of dental amalgam. This is to be achieved by means of a number of activities.



Project Components and Activities

The project has the following components with the respective activities:

1. Trade study and survey of dental amalgam waste management practices

An expert group from the African region (iLima) is being commissioned by UNEP to prepare a desk study and survey to obtain the following information:

- Trade flows of restorative materials, including dental amalgam and alternatives, in particular related to the 3 selected countries of Africa; may also include estimations of environmental cost externalities/avoidance costs with non-amalgam use
- Supply of materials alternative to dental amalgam and distribution systems
- Current practices of waste management related to dental amalgam and use of alternative materials in the selected countries, in collaboration with national project coordinators

2. Selection of national project coordinator and social preparation

Each country will designate its own national project coordinator who shall do social preparation activities such as organizing stakeholders' meetings in order to

- Engage country at the level of national and local governments and civil society representatives on project implementation, expected output, and identify roles and responsibilities

3. Development of awareness raising materials on disease prevention and available alternatives for dental restoration

- WHO Oral Health programme will lead in the development of awareness raising materials in partnership with a WHO Collaborating Centre for Community Oral Health Programmes and Research and discuss practical approaches to disease prevention

4. Inception Workshop

An inception workshop will bring together all 3 participating countries in East Africa. The expert group (iLima) will present the results of the trade and waste management practices study in the three countries. Countries will discuss and validate data on supply and trade and information on current waste management practices. There will be further clarification on project design and on demonstration activities within the context of the phase down approach.

- The national project coordinators will present the criteria developed in the selection of 3 demonstration dental clinics, and the requirements in the installation of the dental amalgam separators will be presented by IDM and FDI
- WHO will discuss awareness raising materials for dental restoration and highlight the importance of disease prevention

The project steering committee will participate in the Inception Workshop

5. Demonstration Activities

Country level activities will be coordinated by the national project coordinator. The following activities will be conducted at country level after the inception workshop:

- Validation of desk study results with respect to the three participating countries and revision, where necessary, of their national mercury inventories;
- Stakeholders'/interagency meeting to present the desk study and proposed demonstrations in the phase down approach;
- Selection of 3 demonstration dental health clinics (one representing government hospital/facility, one private clinic, one University/teaching hospital) based on criteria set by the IDM;
- Coordination with local waste management provider/company and external providers (ie out of country) as relevant and appropriate
- Capacity building/training of the dental health sector in the environmentally sound management of dental materials waste, using training materials developed by WHO, FDI and IDM ;
- Demonstration of best practices in the environmentally sound management of dental amalgam waste: source reduction, use of dental amalgam separators, collection of waste, take back of contaminated capsules by manufacturers/recyclers, on-site storage, and, where treatment facilities exist, the treatment of contaminated sludge;
- Awareness raising activities to promote preventive dental care and encourage appropriate use of alternative materials for dental restoration amongst patients and dentists

6. Results workshop

- A results workshop will bring together all 3 countries to present results of the project. Countries will discuss project results and lessons learned for dissemination to other developing countries, defining further the phase down approach
- The project steering committee will participate in the Results workshop

Project Outputs

- Report on supply and trade flow data of all dental restorative materials and recommendations for future information systems
- Report on dental waste management practices of all dental restorative materials , of the participating countries
- Raised awareness amongst patients and dentists on preventive dental care and use of clinically relevant alternative materials for dental restoration
- Demonstration of best dental waste management practices for all dental restorative materials
- Report of lessons learned providing recommendations for promoting the 'phase down' approach in developing countries , including process analysis

Organization of work/ Institutional arrangements

A project steering committee comprised of UNEP, WHO, FDI, IDM, and one umbrella NGO will be established. The role of the steering committee is to provide advice and guidance on project implementation. The specific roles and responsibilities of participating institutions and agencies are presented below.

Agency/Institution	Roles and Responsibilities	Counterpart Resources
National project coordinators, in collaboration with Expert group (iLima)	1.Desk study, country survey, UN COMTRADE and other available sources, to compile information on: dental material trade flows, in particular related to the 3 selected countries in Africa 2.Gather information on the current practices of dental materials waste management in the 3 selected countries 3.Estimate environmental costs and externalities of the non use of dental amalgam 4.Gather information on supply/distribution of alternative dental materials	
National/country level Project coordinators (could be independent from the Health and Environment Ministries)	1.Validate results of country dental materials trade data and waste management practices; assist in the trade and waste survey 2.Gather information about current set up in dental clinics and local recyclers 3.Community preparation, identify stakeholders, invite to meetings/workshops, including facilitation of the meetings and preparation of the reports, arrange logistics 4. Coordinate training of dental clinic personnel on BMP of dental amalgam waste 5. Coordinate demonstration activities: collection, take back of capsules, on site-storage, treatment of sludge 6. Contact local waste management company 7. Supervision of day-to-day work at national level; 8. Prepare project implementation reports 9. In coordination with Ministries of Health, disseminate awareness raising materials to health sector (Chief Dental Officers) 10. Organize project inception (Kenya) and results workshops (Tanzania)	From country respective Ministries of Health; Ministries of Environment's office space and equipments

<p>International Association of Dental Manufacturers ;</p> <p>World Dental Federation</p>	<p>1.Desk study to gain baseline data to guide and inform 2,3 , and 4</p> <p>2. Provide dental amalgam separators to 3 dental facilities in the 3 African countries (total of 9)</p> <p>3. Develop protocols through illustrative diagrams on the BMP of dental amalgam waste; possible development of video.</p> <p>Protocols to include guidance from WHO on the environmentally sound management (ESM) of health care waste and the Basel technical guidelines on the ESM of mercury waste</p> <p>4.Using the protocols developed, conduct training for dental health professionals on the BMP of dental amalgam waste: proper waste collection, take back of the capsules, recycling, on site storage, and treatment of contaminated sludge</p>	<p>9 dental amalgam separators</p> <p>Technical expertise on BMP of dental amalgam waste</p> <p>Traveling expenses to and from project inception and results workshops;</p> <p>country training workshops</p>
<p>NGOs/civil society</p> <p>National Dental Associations</p>	<p>1.Assist in social preparation</p> <p>2.Assist in dissemination of awareness raising materials on preventive dental care and use of relevant alternative materials for dental restoration</p>	<p>Staff time</p>
<p>WHO Collaborating Center for Community Oral Health Programmes and Research</p>	<p>1.Coordinate the development of awareness raising materials on alternatives available for dental restoration</p> <p>2. Assist in the development of training materials in the environmentally sound management of amalgam waste.</p> <p>3. Provide information to WHO Country Offices and WHO</p>	<p>Staff time</p>
<p>UNEP Chemicals and WHO Oral Health Programme</p>	<p>1. As overall project coordinators, synchronize with</p> <p>a) project steering committee (UNEP, WHO, FDI, IDM, relevant NGOs)</p> <p>b) and the national project coordinators</p> <p>2.Keep partners informed: UNEP ROA, WHO Africa</p> <p>3.Ensures quality reports from national project coordinators and project partners</p> <p>4.Ensures timely and quality project implementation through the respective Ministries of Environment and Health; through National Project Coordinators</p> <p>5. Write the project final report</p>	<p>Communication facilities</p> <p>Office equipments</p>

Duration: 15 months

Work plan

Suggested Schedule of Activities

Activity	Month															Person/ Institution responsible
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1.Administrative and logistical preparation																UNEP, WHO
2.Trade study and waste survey																iLima assisted by National project coordinators
3. Steering committee meeting																UNEP
4.Development of criteria for clinic selection																IDM
5. Selection of national project coordinator																MOE and MOH of 3 countries
6.Inception workshop																Kenya Government
7.National stakeholders' meetings																National project coordinator
8.Selection of dental clinics																IDM and National project coordinator
9. Installation of amalgam separators																IDM and National project coordinator
10.Training of dental personnel																FDI, IDM, National project coordinator

Ministry of the Environment Partners:

Ms. Magdalena Mtenga, Tanzania	magemtenga@hotmail.com
Dr. Julius Ningu, Tanzania	jkningu@yahoo.com
Francis Kihumba, Kenya	saicm@environment.go.ke , kihumba njuguna <kihumbafn@yahoo.com>
Alex Winyi Kiiza, Uganda	awinyi@nemaug.org

Regional counterparts***Bary Abdouraman***

Programme Officer
Chemicals and Waste MEAs Focal Point
Regional Office for Africa (ROA)
United Nations Environment Programme
(UNEP)
UN Gigiri Complex,
Block-2, South Wing. Ground Floor
United Nations Avenue
P.O. Box 305 520 0100, Nairobi, Kenya
Tel.: + 254 762 3494
Mobile: +254 716 431 790

Dr. Benoit VARENNE

Regional Focal Point on Oral Health
Non-communicable diseases Unit
Diseases Prevention and Control Cluster
(DPC/AFRO)
WHO Regional Office for Africa
Cité Djoué P.O. Box 06
Brazzaville, Republic of Congo
Tel-Office: + 47 241 39494
Mobile phone: + 242 057 226 429
E-mail: varenneb@afro.who.int

Project Responsible Persons:**UNEP Chemicals*****Tim Kasten***

Head
UNEP Chemicals DTIE
11-13 chemin des Anémones
CH 1219 Chatelaine-Geneva, Switzerland
email: tim.kasten@unep.org

David Piper

Deputy Head
UNEP Chemicals DTIE
11-13 chemin des Anémones
CH 1219 Chatelaine-Geneva, Switzerland
email: david.piper@unep.org

Desiree Montecillo Narvaez

Programme Officer
Mercury and other Metals Programme
UNEP Chemicals DTIE
11-13 chemin des Anémones
CH 1219 Chatelaine-Geneva, Switzerland
Tel: +41 22 917 8865
Fax: +41 22 797 3460
email: desiree.narvaez@unep.org

WHO***Dr. Poul Erik Petersen***

DDS, Dr. Odont Sci, BA, MSc (Sociology)

Oral Health Programme

Chronic Disease and Health Promotion

World Health Organization

20 Ave Appia CH1211 Geneva Switzerland

Tel: +41 22 791 3475

Fax: +41 22 791 4866

email: petersenpe@who.int | www.who.int/oral_health

Carolyn Vickers

Team Leader, Chemical Safety

World Health Organization

20 Avenue Appia, CH-1211 Geneva 27

SWITZERLAND

Tel: +41 22 791 1286

Fax: +41 22 791 4848

Mobile: +41 79 472 9560

email: vickersc@who.int

Reference document

World Health Organization. Future use of materials for dental restoration. Geneva: WHO, 2010 (available from www.who.int/oral_health)