



How far to the 2020 Goal? The Strategic Approach to International Chemicals Management in Tanzania

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ABBREVIATIONS

CAPP	Chemical Accident Prevention and Preparedness
CMAC	Chemical Management Advisory Committee, Tanzania
GCLA	Government Chemist Laboratory Agency, Tanzania
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
ICCM	International Conference on Chemicals Management
ILO	International Labor Organisation
NEMC	National Environment Management Council, Tanzania
NGO	Non-governmental Organisation
OSHA	Occupational Health and Safety Agency, Tanzania
SAICM	Strategic Approach to International Chemicals Management
SMC	Sound Management of Chemicals
TBS	Tanzania Bureau of Standards
TFDA	Tanzania Food and Drug Administration
TPRI	Tropical Pesticides Research Institute, Tanzania
UN	United Nations
UNEP	United Nations Environment Programme
UNITAR	United Nations Institute of Training and Research
VPO	The Vice President's Office, Tanzania
QSP	Quick Start Program (under SAICM)

SUMMARY

This report presents the results of a study on the implementation of the Strategic Approach to International Chemicals Management (SAICM) in Tanzania. SAICM is a voluntary international agreement established in 2006 with the aim of achieving sound management of chemicals. The study aimed to assess how SAICM implementation has improved chemicals management at the national level in Tanzania. 17 interviews with government officials and other stakeholders were carried out in November 2013.

The report discusses how to measure progress in Tanzania towards sound chemicals management and the 2020 goal. It then assesses this progress by looking at both reduction of specific, significant chemical risks, and by examining how overall chemicals management has been strengthened at the national level.

Interviewees reported that SAICM implementation has had a positive impact on chemicals management in Tanzania. Activities have tackled specific chemical problems, such as the use of hazardous chemicals in the mining industry and gaps in procedure for registering imported chemicals. However, for most of the issues that interviewees considered to be most pressing, SAICM implementation has not yet led to significant improvements on the ground. It was also noted that most of the severe chemical problems were related to the use and handling of chemicals in the informal sector.

Efforts to strengthen overall chemicals management at the level of national policy have included activities under all five of the SAICM objectives. One key achievement was increased political awareness of the urgent need to improve national chemicals management. Other improvements include additions to the legislative framework, as well as the start of implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

We offer some policy considerations in light of the project findings. In addition to ongoing efforts, the government of Tanzania could:

- Continue to improve the coherence of the regulatory framework on chemicals and the coordination among ministries and government agencies
- Specifically target unsafe use of chemicals in the informal sectors
- Ban the import and use of the most hazardous pesticides, and
- Fully implement the GHS in collaboration with other countries in the region.

SAICM/ICCM stakeholders could:

- Share knowledge on best practice for quick risk reduction in informal sectors, and
- Further encourage private sector stakeholders to contribute to risk reduction by taking responsibility for chemical safety in their full supply chains, including subcontractors in informal settings.

Academia and NGOs could help to improve understanding of patterns of chemical use and risks in informal settings, and to identify alternatives to hazardous uses. Mapping and assessing chemical risks (e.g. studies on pesticide residues in food) would also raise awareness among the general public.

Private sector stakeholders could contribute by actively taking measures to reduce chemical risks along their entire supply chains.

1 INTRODUCTION

1.1 Background

Chemicals are used in all industrial sectors as well as in households in everyday life. They appear in chemical products such as paint and washing powder, and as components in items such as furniture, food, electronic equipment, clothes and toys. It is a daunting task to control the use and disposal of the very high number of chemicals in use in order to reduce the risks of hazardous exposure. Developing countries and those with economies in transition are experiencing a rapid growth in chemical production and use. At the same time, legislation and regulations on chemicals management, as well as their implementation, are lagging behind (UNEP 2013b).

Over the past 20 years a cluster of multilateral environmental agreements has developed aimed at reducing the risks associated with the production and use of chemicals. The Strategic Approach to International Chemicals Management (SAICM 2006) is one of the newest additions to this group. Its aim is to achieve sound chemicals management in all countries, formulated in the 2020 goal at the Johannesburg World Summit on Sustainable Development in 2002. The goal aims to ensure, “by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment” (UN 2002, paragraph 22).

SAICM differs from other chemical and waste agreements on several key points: It is a non-binding agreement, its activities are broad in scope (almost 300 actions are listed in the Global Plan of Action), and it allows non-government stakeholders to participate in its main decision-making body (the International Conference on Chemicals Management, ICCM). Its aim, the 2020 goal, is more far reaching and comprehensive in scope than any of the other chemical and waste agreements.

All international agreements imply national implementation activities. Some implementation challenges are generic for all countries and regions, while others are more specific. In the African context, several barriers to implementation have been identified for multilateral environmental agreements (Gray 2003). These include lack of horizontal structures (e.g. inter-ministerial coordination), lack of political will or competing interests, low prioritization of environmental issues, corruption, and limited public participation (Gray 2003). These barriers are likely to be relevant in many

countries for SAICM, too. However, SAICM does specifically address some of these barriers in its design; for instance it makes the point that it is important to involve stakeholders in implementation processes, rather than treating them as add-ons. SAICM also points out the importance of governance aspects of implementation, including horizontal coordination at the national level. Persson et al. (2013, 2014) have reported that these basic design features of SAICM can be positive for national implementation in resource-poor countries.

Many developing countries, among them Tanzania, are committed to the SAICM and have carried out the initial implementation steps, such as creating national capacity assessments, carrying out projects funded under the Quick Start Program (QSP) and working to improve national coordination mechanisms for chemicals management. However, the next step in the implementation chain, with actual progress on the ground towards the 2020 goal, is much more challenging.

The broad scope of SAICM not only presents an implementation challenge, it also means that it is more difficult to measure the progress of implementation. How can the 2020 goal be measured and how can SAICM contribute to advancing overall chemicals management at the national level?

1.2 Aim of the project

This research project aims to evaluate how far the SAICM – in its early implementation as a voluntary international regime – has come on the road to meeting its goal of minimizing, by 2020, adverse effects associated with the production and use of chemicals. The overall research question is: *How does SAICM contribute to improved chemicals management at the national level towards the 2020 goal of minimizing impacts of production and use of chemicals?*

A case study of national SAICM implementation was carried out in Tanzania. The specific research question was: *Has SAICM contributed to on-the ground improvements in chemical safety in Tanzania in line with the 2020 goal and, if so, how?*

Section 1 of this report introduces the aim and methodology. Section 2 provides an overview of chemicals management in Tanzania at the national level,

including the set-up of national SAICM implementation. Section 3 reports the results of the interviews, which are thereafter discussed in section 4. Section 5 provides a summary of conclusions and suggested directions for future efforts towards the 2020 goal.

1.3 How to measure progress towards the 2020 goal?

The SAICM includes three different parts: the Dubai Declaration, the overarching policy strategy and the global plan of action. The Dubai Declaration on international chemicals management states that “sound management of chemicals is essential if we are to achieve sustainable development” (SAICM 2006, paragraph 1). The overarching policy strategy outlines the scope of SAICM, which includes all agricultural and industrial chemicals throughout their life cycle (SAICM 2006, OPS paragraph 4). The overarching policy strategy also refers directly to the 2020 goal as formulated in the Johannesburg Plan of Implementation from the World Summit on Sustainable Development in 2002:

“Renew the commitment, as advanced in Agenda 21, to sound management of chemicals throughout their life cycle and of hazardous wastes for sustainable development as well as for the protection of human health and the environment, inter alia, aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment”

(UN 2002, paragraph 23).

Strictly interpreted, progress towards the 2020 goal is not possible to measure without defining the exact meaning of “significant adverse effects on human health and the environment”. The term “minimization” also needs to be defined. It implies a significant reduction of negative impacts, but the extent is still open to interpretation.

The overarching policy strategy of SAICM states that the sound management of chemicals and the 2020 goal will “be achieved, among other ways, through the implementation of activities set out in the global plan of action” (SAICM 2006, OPS paragraph 13). The broad global plan of action has five areas of activity: risk reduction, knowledge and information, governance, capacity-building and technical cooperation, and illegal international traffic of chemicals.

The SAICM process has also identified a set of 20 indicators for measuring progress in implementation

(UNEP 2012). The second round of reporting by countries and other stakeholders to the SAICM secretariat is currently under way (October 2014). These indicators are general in nature and it is arguable if they are sufficient for measuring progress towards the 2020 goal and sound management of chemicals. For example, under the category of risk reduction there are indicators for whether there is a mechanism in place for setting priorities in this area, and whether there is a website through which stakeholders can access information about chemical risks. However, indicators of this kind have limited value for assessing progress on actual risk reduction at the local level, because assessments depend on how such mechanisms are used in practice, and not on whether they simply exist. And although many countries have established national implementation plans and conducted priority-setting exercises, which will be captured by the SAICM indicator system, the continued implementation and enforcement of those plans will not. The SAICM secretariat’s summary report also tended to have a quantitative focus, as opposed to assessing the quality of reported actions, and neither were the results linked to the 2020 goal. In addition to the limitations of the indicators themselves, it should be noted that the overall rate of response was only 40% among all governmental participants. The SAICM indicators on their own are not adequately specified for measuring progress toward the goal of SAICM.

There is a growing awareness of this lack of precision of the meaning of the 2020 goal in the SAICM context, and as a result several initiatives have been set up to tackle the problem. For instance there is ongoing work to more closely define the components of sound chemicals management (UNEP 2013c) and define regional priorities (UNEP 2014) and other strategic choices for achieving the 2020 goal (KemI and Ministry of the Environment Sweden 2012).

In summary, there is no consensus on the concrete key components of sound management of chemicals, or on how to measure progress towards the 2020 goal. However, there is a large body of overarching components that have been agreed under the SAICM framework as the main areas to work on in order to achieve the goal. For the purpose of this study we chose to first look at the extent to which SAICM has contributed to the reduction of the most pressing specific chemical risks in Tanzania today (as identified by the interviewees and in the literature), and second, to discuss SAICM’s contribution to the strengthening of chemicals management at the national level, as outlined in the overarching policy strategy and the other SAICM texts.

1.4 Methodology

We chose SAICM implementation in one country – Tanzania – as a case study. Our primary focus was to understand the specific case, and not to generalize the findings beyond it (Johansson 2003). There were two criteria for the choice of country: The first was that it should be a developing country where large challenges in terms of chemicals management remain, and the second was that the country should have been an active participant in the SAICM process.

Tanzania fulfills these two criteria, and has been committed to the SAICM process as early as the negotiating stages. The Tanzanian Deputy Minister of Health co-chaired the final negotiations of SAICM in Dubai in 2006 and also signed the agreement on behalf of the country. Civil society actors have also been actively contributing to the SAICM process. The Tanzanian non-governmental organization (NGO) AGENDA has carried out a project under the SAICM Quick Start Programme (QSP) and the chair of their board is Focal Point for Africa, an SAICM NGO.

The purpose of the case study was to map the outcomes of SAICM implementation on the ground by interviewing Tanzanian stakeholders from government ministries and agencies, the private sector and NGOs. The interviews were semi-structured, and some were carried out in groups with two or three interviewees together. Interviewees were given the chance to comment on the draft report before publication.¹

This method has the advantage of highlighting the views and experiences of the stakeholders that work most closely with chemicals management in Tanzania. If the interviewees had been chosen to include, for instance, users of chemical products, such as farmers using pesticides, parents using household chemical products or pesticide sellers in the informal sector, additional views and insights would most likely have emerged. This was, however, outside the scope of this study.

We also reviewed relevant government documents and other reports, and the scientific literature, in order to verify the implementation progress as described by interviewees.

¹ The draft report was sent to all interviewees by email. Two of the email addresses were not valid and returned the mail. One interviewee kindly submitted comments on the draft. These were included in the final revision.

2 CHEMICALS IN TANZANIA

2.1 General chemicals management

While Tanzania produces certain chemicals for domestic use, most of the chemicals used in industry, agriculture, and households are imported. In 2002, the national profile to assess the national infrastructure for managing chemicals was updated (The United Republic of Tanzania 2002). This document gives a thorough overview of the challenges Tanzania faced in terms of national chemicals management in 2002. Today, Tanzania's chemical management context is still characterized by increasing imports of chemicals, exposure of humans and the environment to hazardous chemicals, low levels of awareness among users of the dangers of chemicals or of safety practices, and weak coordination at the national level in terms of practice and procedures. The majority of chemical handling and use takes place in Dar es Salaam, but there is also substantial use of chemicals in the rural agricultural sector and mining industry (GCLA 2014).

The deficit in chemicals management results in dangerous exposure to chemicals of people and the ecosystems they depend on for their living (Daily News 2013a). This leads to significant levels of chemical-related disease (Pruss-Ustun et al. 2011) and other costs to society (UNEP 2013a). Research on environmental concentrations of chemicals has indicated that in spite of a ban there is still ongoing use of DDT (Mwevura et al. 2002; Hellar and Kishimba 2005), that there are hotspots of high concentrations of organochlorine pesticide residues in agricultural areas, which pose a risk to human health and livestock (Marco and Kishimba 2005). Also, high levels of chemicals remain in the environment after clean-up operations of old chemical stockpiles (Elfvendahl et al. 2004).

Chemicals management and legislation in Tanzania currently takes a sectoral approach, in which government institutions focus on the chemicals used in those sectors for which they are responsible. Pesticides and other agrochemicals are registered and managed by the Tropical Pesticides Research Institute (TPRI), food preservatives and additives by the Tanzania Food and Drug Authority (TFDA), and consumer and industrial chemicals are managed by the Government Chemist Laboratory Agency (GLCA). Chemical waste and emissions from industrial sources are handled under the National Environment Management Council (NEMC).

The ministries directly responsible for different parts of national chemicals management are the Ministry of Health, the Ministry of Agriculture, Food Security and Cooperatives, the Ministry of Energy and Minerals and the Ministry of Industry and Trade. In addition, the environmental division of the Vice President's Office (VPO) has responsibilities for chemicals management in its role of overall policy overseer. For the purpose of inter-ministerial coordination there are technical committees composed of staff from different ministries and agencies that advise the government on issues such as classification and labeling, and health and environmental aspects of certain chemical uses. There is also a Chemicals Management Advisory Committee (CMAC), established under the environment management act (GCLA 2014), that is called upon for dealing with various issues under the national chemicals management agenda. The NEMC hosts the secretariat of the CMAC.

Different aspects of chemicals management are addressed in a number of policies and acts in Tanzania, for example in the Environmental Policy of 1997, the Environmental Management Act (EMA) of 2004, the Consumer and Industrial Chemicals Act of 2003, the Mining Act of 2010, and the Mineral Policy of 2009 (see the list of policies and acts in annex 2).

While this report focuses on activities at the national level, it should be noted that as part of efforts to improve chemicals management in Tanzania some activities have been devolved to local government authorities (Mashimba 2012).

Tanzania is signatory to several international conventions that address chemicals and waste management. These include the Rotterdam, Stockholm and Basel conventions, and the Montreal Protocol (Table 1). The Vice President's Office (VPO) has the mandate to oversee the development of all national policy, including on the environment and chemicals management as related to the above-mentioned agreements.

Other stakeholders also play a role in chemicals management. For example, some companies in Tanzania have voluntarily adopted guidelines for managing empty pesticide containers. There are several recent reports that extensively review the organization of national chemicals management in Tanzania (AGENDA 2013; GCLA 2014; The United Republic of Tanzania 2007).

Table 1: Tanzania's ratification status in international environmental agreements in the field of chemicals and waste

Agreement	Date of ratification or accession
Montreal Protocol for the Protection of the Ozone Layer	1993
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1993
Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa	1993
Convention Concerning Safety in the Use of Chemicals at Work (ILO convention 170)	1999
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	2002
Stockholm Convention on Persistent Organic Pollutants	2004
Convention Concerning the Prevention of Major Industrial Accidents (ILO convention 174)	Tanzania is not a party
Safety and Health in Agriculture (ILO convention 184)	Tanzania is not a party

2.2 SAICM implementation: Organization and activities

The Tanzanian Government committed itself to the SAICM process in the preparatory negotiations of the agreement. The Tanzanian Deputy Minister of Health co-chaired the final preparatory negotiations of SAICM in Dubai in 2006, and also signed the agreement on behalf of Tanzania. Tanzanian civil society actors have also been contributing to the SAICM process.

The national SAICM focal point is based at the Government Chemist Laboratory Agency (GCLA). The first step in implementation in Tanzania was a pilot project carried out together with United Nations Institute for Training and Research (UNITAR) from 2006 to 2009.² The pilot project aimed to improve chemicals and waste management in the country by bringing together all relevant stakeholders, including the private sector, NGOs, community associations, government ministries, and other institutions dealing with chemicals in their daily operations, and ultimately it aimed at achieving the 2020 goal in Tanzania. The project contained several components. Among these were staff training to improve border controls, an assessment of national capacity, and the preparation

of national guidelines on emergency preparedness, prevention and reporting (The United Republic of Tanzania 2009; Adolfsson and Lindgren 2008).

In addition to this pilot project, four other projects have been carried out with funding from the Quick Start Program (QSP) of SAICM. The QSP offered a time-limited funding opportunity with the purpose of kick-starting implementation. Table 2 lists the four QSP projects granted to Tanzania. The two government-led projects were both a continuation of work started during the pilot project, one on capacity building for management of persistent organic pollutants (The United Republic of Tanzania 2005) and one on chemical accident prevention and preparedness (GCLA 2014). In addition, there were two NGO-led projects. The first was a project on law reform in Eastern Africa and chemicals management capacity (e.g. AGENDA 2013) which was successfully finalized in 2013. The second was on strengthening agricultural workers' associations, which was later cancelled.

In addition to the QSP projects, the project Capacity Building and Chemicals Management in Tanzania focused on building capacity among chemical industry associations, and was funded by the Swedish Chemicals Agency (KemI 2009).

² The pilot project was titled Strengthening Governance, Civil Society Participation and Partnerships within an Integrated National Chemicals and Waste Management Programme.

Table 2: QSP-funded projects carried out in Tanzania during rounds 1–12

Project name, description and status	QSP round	Funding
Chemical Accident Prevention and Preparedness Programme for Tanzania (CAPP Programme-TZ). (Government project, in collaboration with UNEP, ongoing.)	11 th	USD 249,983
SAICM implementation in East Africa: Law reform and capacity building for sound chemicals management in Kenya, Tanzania and Uganda (Civil society project: AGENDA, iLima-Kenya & NAPE)	5 th	USD 250,000
Capacity enhancement for the implementation of the Stockholm Convention in the United Republic of Tanzania (Government project, under the division of environment of the Vice President's Office)	4 th	USD 248,819
Tanzania plantation and agricultural workers union: Strengthening the capacity of agricultural workers and workers' organisations in the implementation of SAICM (Civil society project. This project has been cancelled).	1 st	USD 241,800

3 RESULTS

3.1 Significant chemical problems

In the interviews, Tanzanian stakeholders identified what they saw as the most significant current chemical problems in the country (see Table 3). They pointed to issues from a range of different sectors and chemical uses, including mining, wood, oil and gas, the food industry and the agricultural sector. These are discussed below.

Mining industry

The mining industry is growing rapidly, and is becoming one of the main users of chemicals in the country (GCLA 2014). Tanzania has become one of the largest producers of gold in Africa (Daily News 2013c). One major problem has been the traditional use of mercury in small scale gold-mining (Kitula 2006; Bryceson and Jönsson 2010).³ But, while the use of mercury has now been banned, according to several interviewees it is still used illegally, which they perceived as an unfinished challenge. However, one interviewee noted that the supply of mercury is declining and the price is rising, which may help steer small-scale miners to alternative chemicals such as borax. Another major concern related to small-scale gold mining is the use of sodium cyanide (classified as highly hazardous by the World Health Organization, class 1b). In 2013 the amount of sodium cyanide imported into Tanzania reached more than 13,500 megatons (GCLA 2014). The chemical is often used with minimal precautions and users are often unaware of its potentially severe risks to the environment and human health.

Medium-scale mining practices have been improved but problems still remain. For instance, registration is now required for the use of sodium cyanide, and this registration procedure also requires that there should be a fence around ponds containing discharged cyanide. This has contributed to fewer accidents involving cattle that drink contaminated water – which has been a common cause for conflict in the mining areas. However, many miners are still unaware of the risks associated with cyanide use and lack the training needed to apply safety precautions. According to the

National Environment Management Council, Tanzania (NEMC) there are around 60–65 small gold plants in the Lake Victoria region using cyanide in their operations. NEMC and GCLA inspectors also still encounter sodium cyanide of unknown origin that has not been registered.

Wood preservation

Copper-chrome-arsenic (CCA) can be used for wood preservation, and should be applied through pressure impregnation. However, a government interviewee reported that many small-scale wood workers apply CCA (or other hazardous chemicals intended for pressure impregnation) on surfaces by hand, without any protective gear. Not only is this a great concern because of the health risks for workers, there is also a risk of serious environmental damage. The chemical will also wear off much more quickly than if applied with pressure, which results in the wood product having a shorter life, which in turn puts more pressure on wood resources and eventually leads to higher rates of deforestation. The wood industry as a whole uses chemical imports worth TSH 10 billion per year.

Oil and gas sectors

The oil and gas industries (and associated exploration) are expanding and use a variety of different chemicals (GCLA 2014). There is a need for improved capacities to deal with chemicals in this sector. According to a government interviewee, the government lacks the means to track chemical use and management in these industries, or to verify that they comply with the regulations. The government can only rely on companies adhering to operator's policies. When operations are in deep-sea locations the logistics for government controls are challenging. Some companies bring in their own chemicals by ship to operations without any control by the authorities. Interviewees also reported that oil and gas operators have left unlabelled chemicals behind on islands when they finish their operations, which makes clean-up work very difficult for the authorities because without correct labelling they cannot properly dispose of such waste.

Pesticides in the agricultural sector

The 2002 national assessment concluded that the current pesticide regulation (the TPRI Act) was not at that time fully enforced and that there were serious problems with chemical use throughout the pesticide life cycle (The United Republic of Tanzania 2002). Today, severe problems with misuse of pesticides in the agricultural sector persist, according to government interviewees.

3 According to the Tanzanian 2010 Mining Act, small-scale mining is a mining activity requiring capital investment of less than USD 100,000; a medium-sized mining activity is one with investment between USD 100,000 and 100,000,000; and a large-scale mining establishment is one with above USD 100,000,000 in capital investment.

Table 3: The most significant chemical problems in Tanzania, as identified by interviewees

Chemical problem	Description	Number and type of interviewees mentioning the problem
Chemical use in small and medium-scale mining	Sodium cyanide used in mining activities without proper training on safety precautions. Illegal use of mercury reported.	2 (government)
Chemical use in wood industry	Improper use of copper-chrome-arsenic in small-scale wood industry.	2 (government)
Chemical use in the oil and gas industry	There are inadequate means for involved authorities to track the chemical use and verify compliance in deep sea operations.	1 (government)
Misuse and mismanagement of pesticides	Application of pesticides without prior checking for pest infestations, applying mixtures of pesticides, applying pesticides without personal protective equipment. Lack of handling procedures for empty containers.	1 (government)
Public outreach and awareness raising	The major means for public awareness raising are radio and TV, which are only available to a segment of the population. The literacy rate is still low and newspapers are not readily available throughout the country.	4 (1 NGO, 3 government)
Illegal imports of chemicals	Illegal imports of chemicals, some of which are sub-standard.	2 (1 NGO, 1 government)
Industrial chemicals entering the food chain	There have been cases where industrial chemicals were used to preserve food in small-scale food production.	1 (government)
Lack of disposal and destruction facilities	There is no registered facility in the country for disposal or destruction of obsolete or used chemicals.	3 (government)
Illegal repackaging and inappropriate labelling	Bulk chemicals are repackaged illegally and resold, either with no, or inappropriate, labelling.	2 (government)

Even though the country has ratified the Rotterdam Convention, it has still not been fully integrated, for example in relation to post-registration risk management. Problems include inappropriate reuse of empty pesticide containers that may leave users severely exposed, and although there is a voluntary guideline for safe disposal of containers, it is not fully implemented. The extension services provided by the government to assist farmers are still inadequate. One government interviewee reported that there are only around 12 staff to assist farmers in around 70 villages. Sellers of pesticides are obliged to inform their customers about what they are buying, but this is not happening as it should, and there are also problems with illegal repackaging and labels written in the wrong languages. Interviewees at the Ministry of Agriculture also pointed to the problematic practice of using chemicals in air sprays – fenthion in particular – to deter birds from crops. When birds die from the

spray sometimes people collect the fallen birds from the ground for food, which results in exposure to the pesticide residues.

Public awareness

Reaching the general public with information about chemicals and safety precautions is a challenge. Illiteracy levels in local communities, combined with the fact that many people lack access to TV or radio, mean that it is difficult to reach out to people to raise awareness of chemical safety and chemical use.

Substandard and illegal imports

Substandard and illegal imports of chemicals continue to be a problem. Illegally imported chemicals have been detected both in the mining industry and in agriculture (e.g. AGENDA 2006), and inadequate resources of customs controls and lacking knowledge among chemical importers reported

(Kemi 2009). Illegally obtained chemicals have also been used in crime, for example in acid attacks, and it has happened that industrial chemicals like formalin have entered the food chain, with serious health implications for the consumers.

Lack of disposal and destruction facilities

Another major problem mentioned by several government interviewees was the fact that there are no facilities to dispose of or destroy obsolete or used chemicals. They described the various ways in which these chemicals are dealt with: They can be reused, diluted and discharged, incinerated in cement kilns, or the owner is asked by NEMC to store the chemicals until further notice. There is no registered incineration facility in Tanzania for destruction of chemicals (cement kilns are not official facilities).

Reselling and illegal repackaging

Interviewees reported that bulk chemicals are repackaged illegally and resold with no, or inappropriate, labelling. Earlier studies have also concluded that pesticide retailers often did not comply with regulations (AGENDA 2006; Stadlinger et al. 2012).

3.2 Overall chemicals management

This section draws on the interviews as well as on the national assessment carried out in 2002 and other literature on the topic. It reviews recent achievements and remaining challenges in Tanzania using the five SAICM overall objectives as the framework. Some of the objectives overlap, in that activities contribute to more than one of the objectives. The five objectives are: risk reduction; knowledge and information; governance; capacity building and technical cooperation; and illegal international traffic.

Risk reduction

Interviewees reported that national implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) has been initiated. The GCLA has drafted a GHS regulation, and the intention to implement GHS was already expressed before the SAICM was in place (SADEC 2004), but SAICM implementation has perhaps helped to push the issue forward through the SAICM Pilot Project, under which the urgent need for GHS implementation was noted in the capacity assessment (The United Republic of Tanzania 2007, p.54). As a member of the Southern African Development Community (SADC), Tanzania has agreed with the SADC aim of implementing GHS by 2020 at the latest, as communicated to United Nations Sub-Committee of Experts (UN SCE) on

GHS in 2013 (CEFIC 2014b). GHS implementation is crucial in reaching several of the SAICM objectives. Many interviewees referred to a range of problems that would be addressed through GHS implementation and enforcement, such as illegal repackaging of bulk chemicals and missing labels or labels in the wrong language. An earlier study concluded that while wholesalers of pesticides are better at compliance, retailers often do not follow current regulations (AGENDA 2006), thus this is an area where targeted government efforts are needed.

SAICM implementation has also helped to improve Chemical Accident Prevention and Preparedness (CAPP) at the national level, which has been achieved through a QSP project that is still ongoing (October 2014). This project has carried out a country-situation analysis and two workshops on building a stronger system for national prevention and preparedness (GCLA 2014).

The poison control centre in Tanzania is reported to be non-functioning, while pesticide dealers and distributors are reportedly discouraging incident reporting (Mashimba 2012). The QSP project on CAPP highlighted the need to newly establish a national poison centre, and reports that an application has been submitted to the WHO for financial support for such a centre (GCLA 2014).

An important component of risk reduction is the existence of appropriate destruction facilities and disposal management of used or obsolete chemicals. As noted above in the section 3.1, the lack of destruction and disposal arrangements is one of the outstanding issues to solve. SAICM implementation has highlighted this issue, but no solution is yet in place.

Knowledge and information

Government interviewees said that SAICM has helped to raise awareness among high-level government officials. Not only does this contribute to the knowledge and information objective, but can also be seen as a necessary first step toward the governance objective. One interviewee said that, because the Deputy Minister of Health was there to sign SAICM in person, this was a signal that issues of chemical management have political weight. The regional SAICM meeting in 2008, hosted in Dar es Salaam by the Ministry of Health, also put greater focus on the pressing need to improve chemicals management, which in turn increased political support for national action. The Permanent Secretary of the Ministry of Health chaired the steering committee of the SAICM pilot project.

Table 4: Actions undertaken at the national level in Tanzania in line with SAICM implementation between 2006–2013, under the five SAICM objectives

Objective, and associated projects and activities	Status
Objective: Risk reduction	
GHS implementation initiated	GCLA has prepared a draft law on the GHS implementation.
Chemical accident prevention and preparedness	A QSP project started in 2013 and is ongoing. It has produced guidelines for transporting hazardous substances and two training workshops have been carried out.
National poison control centre	An application has been submitted to the World Health Organization to create a national poison control centre.
Facilities for destruction	The issue has been highlighted but so far no solution has been identified.
Objective: Knowledge and information	
Improved general awareness of chemical problems and governance needs	SAICM implementation has improved the general awareness among government officials of the need to advance overall chemicals management.
Awareness-raising among stakeholders from the private sector and civil society	Training and project activities have contributed to improved general awareness. However, this has been limited to project participants and trainees. Large challenges remain in raising awareness among the general public.
Data availability on chemicals import and use	There have been recent achievements in registering imported chemicals and improving border controls. Still, the availability of data is a limiting factor in national chemicals management.
Objective: Governance	
Ratification and full implementation of international agreements in the chemicals and waste cluster	The main conventions in the chemicals and waste cluster were ratified by Tanzania prior to SAICM implementation. Two International Labour Organization conventions (ILO conventions 174 and 184) are still missing in Tanzania's list of ratifications. Full implementation of, for example, the Rotterdam Convention is not yet achieved.
Legislation	The Industrial and Consumer Chemicals Act was introduced in 2003 and is now being revised. A new law on fertilizers was put in place in 2009 (Fertilizers Act, No. 9 of 2009).
National coordination	National coordination is still a missing link in national chemicals management. A process to develop a national chemicals policy has been initiated as part of the SAICM implementation.
Stakeholder involvement	Government officials and other stakeholders have noted an increase in stakeholder involvement.
Objective: Capacity building and technical cooperation	
Direct use of information material produced under global SAICM activities	Interviewees reported that materials produced under the SAICM umbrella were useful.
Objective: Illegal international traffic	
Controls at entry points improved	Most entry points to the country now have a desk with a GCLA representative in charge of chemical imports.

Outside the government, the SAICM pilot project has raised awareness among officials dealing with chemicals in various sectors, and within the private sector, and made efforts to reach the public through TV, radio, and popular publications. However, many challenges remain. Most chemical users are interested in achieving primary goals (e.g. collection of used batteries by people recycling waste or use of sodium cyanide by miners without proper training) and less concerned with delayed chemical effects on health and the environment. The general public in rural areas has limited access to media, making outreach more difficult. Several interviewees in this study emphasized the importance of awareness raising as part of the SAICM agenda, and chose it as the number one indicator of progress towards the 2020 goal.

Availability of data and information is still low at the national level on chemical production, imports and use, and on levels of chemicals in the environment. The 2002 national assessment also noted the need for greater data access of this type. But there have been some achievements in this area, one being improvements in the system of registering imported chemicals into Tanzania (Interviewees, AGENDA 2013).

Governance objective

A key objective of SAICM is improved governance of chemicals at national and local level. There are many aspects of governance to consider. One is national ratification and implementation of the multilateral environmental agreements in the field of chemicals and waste. Although Tanzania had already ratified most of these agreements prior to the start of SAICM, full implementation of the conventions is still a work in progress. For instance, interviewees at the Ministry of Agriculture noted that the Rotterdam Convention is not yet fully operational. Of the list of conventions mentioned in the SAICM texts, the conventions not yet ratified by Tanzania are the ILO conventions 174 and 184 on the prevention of industrial accidents, and safety and health in agriculture, respectively (see Table 1).

Another key governance issue is the aim to have full legislative cover for the whole life cycle of chemicals of all kinds. In the 2002 national assessment, it was concluded that legislation was still missing or not complete in a number of areas, for example on fertilizers, industrial chemicals, consumer chemicals and chemical waste (The United Republic of Tanzania 2002). Since then, legislative coverage for chemicals has increased, with the Consumer Chemicals Act of 2003 (now being revised) and a new law on fertilizers put in place in 2009 (Fertilizers Act, No. 9 of 2009).

The 2002 assessment concluded that there were coordination gaps, and that this was problematic because authorities had overlapping mandates. Several interviewees stated that national coordination is still a challenge. The lack of coordination between sectors creates loopholes; for example, a chemical that is banned for use in one sector may be imported for another use and still end up being used where it is banned (AGENDA 2013). The current fragmentation of chemicals management also results in each sector having a narrow focus. For instance, the Mining Act of 2010 only covers the use of sodium cyanide, and does not address other chemicals used in the mining sector. The Ministry of Agriculture is responsible for the registry of pesticides, but industrial and consumer chemicals are registered with the GCLA under the Ministry of Health.

Structural challenges have arisen from reorganization in some ministries. Recently the Ministry of Agriculture, Food Security and Cooperatives decentralized extension services to district level, and these are now under the Ministry of Local Government under the Prime Minister's office. There is still coordination between the Ministry of Agriculture and the Ministry of Local Government but pesticides are seldom at the top of the agenda or a priority issue in matters of coordination.

Government interviewees explained that among technical committees there is successful coordination, but at the level of decision-making – among directors and senior government officials – coordination is still lacking. The interviewee from GLCA suggested that one measure to address this would be to create a **national policy on chemicals management** that would spell out how coordination could be achieved. Such a process has been initiated at the level of permanent secretary, and it was decided to carry out an inventory of existing national policies as a first step. The VPO is coordinating the process.

The SAICM design places heavy emphasis on **stakeholder involvement**. The report from the NGO QSP project in Eastern Africa notes that stakeholder involvement in chemicals management and awareness raising in Tanzania is improving (AGENDA 2013). Interviewees from the Ministry of Agriculture said that the processes triggered by SAICM mean that they are no longer “shy” about interacting with universities or NGOs. The government is now more open to collaboration with these stakeholders.

Capacity building and technical cooperation

The fourth SAICM objective is increased capacity building and technical cooperation. Interviewees

from the Ministry of Agriculture and Occupational Health and Safety Agency (OSHA) said that they have used information obtained through the SAICM forum in training with different stakeholders, and have found it very useful.

Illegal international traffic

The fifth objective of SAICM is to combat illegal international traffic. There have been recent improvements in Tanzania in this area: Most entry points to the country now have a desk with a GCLA representative in charge of chemical imports (AGENDA 2013) and registration of imported chemicals has improved (Daily News 2013b). However, there are still challenges associated with porous borders, and chemicals are still illegally imported into the country.

3.3 Indicators of progress towards the 2020 goal

We asked interviewees about which indicators they thought would be most interesting for measuring

progress towards the 2020 goal in Tanzania. The answers are summarized in Table 5. Notably, the first response of several interviewees was that measuring public awareness and awareness among policy-makers would be a key issue. Also, in the call made by the Swedish government in 2012 for eight actions in the eight years until 2020, the two first actions concerned awareness raising and access to information (KemI and Ministry of the Environment Sweden 2012). This indicates a view that the primary role of SAICM is to supply a vision of what sound chemicals management can be, and to support efforts towards this goal by sharing information on and raising awareness of chemical risks.

Other suggestions made by the interviewees included aspects such as the existence of national coordination for chemicals management or the number of chemical accidents and poisonings (see Table 5). Not all the suggestions are possible to measure today because of a lack of data, but interviewees were asked to disregard such practical considerations when answering this question.

Table 5: Indicators of progress towards the 2020 goal as identified by interviewees (Note: this question was not included in all interviews)

Possible indicator	Description	Number and type of interviewees
Availability of information on chemicals	Information on which chemicals we have on the market, imported by whom, in what amounts, hot-spots for chemical exposure and hazardous areas.	2 (1 government, 1 NGO)
Availability of information on hazardous transports	Who, where, when and what is being transported when it comes to hazardous substances.	1 (government)
Existence of formalized coordination	Coordination between ministries and agencies.	1 (government)
Public awareness	Consumer awareness on food safety, knowledge of farmers on agrochemicals.	2 (1 government, 1 NGO)
Number of chemical poisonings and accidents	Today only cases that become police cases are recorded. Potential for the poison centre that is being planned to record these cases.	1 (NGO)
Levels of agrochemical residues in exported food	E.g. in terms of number of notifications received.	2 (1 government, 1 NGO)
Number of environmental impact assessments	Number of environmental impact assessments in relation to the number of businesses.	1 (NGO)
Number of registrations of pesticides	Number of registrations of pesticides under the Prior Informed Consent Procedure under the Rotterdam Convention.	2 (government)
Number of chemical counterfeits in the country	Number of chemical counterfeits reported in the country.	2 (government)
Number of audit assessments	Number of audit assessments carried out by TFDA/ NEMC.	1 (government)
Grey water testing at entry points in water treatments plants	To indicate to authorities which chemicals are being used at the household level.	1 (government)

4 DISCUSSION

4.1 How has implementing SAICM made a difference?

Possible SAICM contributions to each of the most pressing chemical problems presented in section 1 are discussed below, followed by a summary of the strengthening of overall chemicals management during SAICM implementation.

The mining sector: Interviewees reported that putting SAICM into action has improved chemicals management in the mining sector (both under the pilot project and in the QSP project on accident prevention and preparedness). The new registry of cyanide use, and new national guidelines for chemical transports, have both had an impact.

Although chemical risks to health and environment remain in small and medium-scale mining operations, both government and NGO actors reported substantial improvements in the way chemicals are used in large-scale mining. New national guidelines are now in place on preventing and preparing for chemical accidents, which include monitoring of chemical transports to and from mining establishments, and a requirement for emergency vehicles to follow chemicals in transit. In addition, chemical transports are only allowed during daytime and the communities living along the road should be informed beforehand that a chemical transport passes by.

Chemical misuse in wood preservation: To our knowledge SAICM implementation does not yet include specific activities in the timber sector. However, any activities aimed at improving, for example, the process of registering imported chemicals and increasing control over chemical users, as well as increasing general public awareness on chemical risks will contribute to increased chemical safety also in the wood industry. As in the mining sector, it is likely that these improvements will first affect chemicals management in larger operations, and that occupational chemical risks will persist longer in the informal small-scale timber industry.

The oil and gas industry: The SAICM project on preventing and preparing for chemical accidents is relevant to this sector. However, there are other issues that have not been dealt with, such as the challenges in controlling and inspecting deep-sea explorations.

Pesticides in the agricultural sector: There are several different problems of chemical use in the agricultural sector. Some of these have been addressed by the SAICM implementation activities but not all.

The Ministry of Agriculture has been training farmers on integrated pest management (IPM) in hotspot areas of pesticide use, mostly in vegetable production. Farmers have been shown how to identify pesticides that were not properly registered by the Ministry of Agriculture, and to recognize symptoms of pesticide poisoning. This has been partially successful, but officials have also seen cases where trained farmers use IPM for the crops intended for their own household consumption, but continue with business as usual for the crops they grow to sell at market. Ministry interviewees suggested that epidemiological studies on health impacts of pesticide misuse would be helpful in order to raise awareness.

The Ministry of Agriculture also contributed to the African stockpile project (an action taken under the Stockholm Convention). While this project did successfully remove old stockpiles of obsolete pesticides, interviewees expressed concerns that, because there is still no registered incineration facility or proper system for safe disposal of unused pesticides, new stockpiles may be forming.

A plant protection bill is currently being considered in parliament. If put into law, this would replace the 1979 Plant Protection Act, which has proved difficult to implement, reportedly because it is too fragmented. The pesticide registry held by the TPRI is also currently being updated, which is seen as another important step in improving pesticide management.

Interviewees also felt that SAICM has been instrumental in providing a road map for how to deal with imported pesticides.

Public awareness and information: There are challenges in informing the public about chemicals and chemical safety. Interviewees claim that SAICM implementation has increased stakeholder participation in chemicals management at the national level, which can be seen as a contribution to increased public awareness. Media coverage of events such as the regional African SAICM meeting hosted by Tanzania is also having an impact. However, large challenges remain and there is still a great need to boost public awareness on chemical risks.

Substandard and illegal imports: Border staff have been trained to identify illegal imports. This is a crucial measure, but others are also needed, for instance to deal with illegal imports that are smuggled into the country.

Lack of facilities for disposing of or destroying obsolete chemicals: No action has so far been taken to address this problem.

Illegal repackaging or reselling: Chemicals are often repackaged illegally and resold with no, or inappropriate, labeling. Full implementation and enforcement of a globally harmonized system of classification and labelling of chemicals (GHS) as part of the SAICM action plan is needed in order to combat this problem.

SAICM implementation activities have reduced some of the most pressing chemical risks in Tanzania, but not yet addressed all or fully solved any of them. One can also conclude that significant chemical problems identified by the interviewees overlap to a large extent, with the list of pressing chemical problems already identified in the 2002 national assessment. These include: pollution of inland water bodies, hazardous waste treatment and disposal, occupational and public health, pesticide poisoning, and suicides (The United Republic of Tanzania 2002). We noted that small-scale businesses, smallholders and the informal sector dominated the list of the most serious chemical problems reported by interviewees.

In terms of strengthening overall chemicals management, SAICM appears to have contributed to all of the five SAICM objectives, including awareness raising at the political level. In addition, legislative components such as the draft legislation of GHS and the redrafting of the Industrial and Consumer Chemicals Act are key achievements, and it is likely that SAICM has contributed to their development. Interviewees viewed the higher degree of government-stakeholder consultation and the ongoing deliberations on a possible future national chemicals policy as positive contributions from national SAICM implementation. Several interviewees in this study mentioned awareness raising as the first choice of indicator of progress towards the 2020 goal.

4.2 Urgent need to reduce chemical risks in the informal sector

When interviewees were asked to list cases of serious chemical problems in Tanzania, most of the problems they identified concerned high risks of exposure to hazardous substances from handling and use of chemicals in the informal sector. Examples discussed above include the small-scale wood preservation businesses, small-scale mining, smallholder farmers, and small-scale food production. In addition to these examples there are most likely a number of additional informal sectors of concern, for example street-selling of agricultural pesticides for household use (Rother 2010) and small-scale metal workshops and garages (Rongo 2005).

The use and disposal of chemicals in all informal sectors is characterized by a lack of safety measures both in handling and in personal protection equipment (Soogreem Singh et al. 2012). The informal sector is also where illegal repackaging and missing labels are most common. Any improvements in legal structures and other national provisions are unlikely to change procedures in the informal sector first – not unless the measures specifically target this sector.

Poverty is a major reason for the unsafe use of chemicals in the informal sector; only people with limited livelihood options will choose to do work that exposes them occupational hazards. Any measures taken must also ensure that they do not remove livelihoods but offer alternatives. In turn this requires improved understanding and mapping of where the large chemical risks are in the informal sector, and of the drivers behind a specific type of chemical handling and use.

Possible measures include country-to-country sharing of best practices, for example learning from the South African initiative to assist street sellers of pesticides for rat control to instead sell rat traps (Rother 2010). The SAICM framework is an appropriate forum for sharing such examples. There is also a need for improved understanding of the extent of the problem. Here there is room for academia and NGOs to help map the scale of the problem by suggesting alternatives to unsafe practices. Furthermore, private sector actors – including subcontractors in informal settings – can assist by assuming greater responsibility for chemical safety in their entire supply chains (CEFIC 2014a).

4.3 Agricultural sector

The agricultural sector represents a specific challenge since it deals with specifically hazardous substances and a large number of users. It is significantly more difficult to reduce risks associated with the most hazardous agrochemicals compared to less hazardous products. One measure that has great potential to reduce risk for agricultural workers, their families and consumers is to ban the import and use of the most highly hazardous pesticides, in line with FAO/WHO suggestions (FAO/WHO 2013). For Tanzania this could mean banning zeta-cypermethrin (WHO class 1b highly hazardous), and atrazine, carbaryl, diuron, fenthion and malathion (which are banned or severely restricted in the European Union). These substances are all currently registered for use in Tanzania (TPRI 2011). However, a ban or use restriction is only the first step and will only reduce risk if efficiently enforced. This is a challenge with both organizational and financial components. Nevertheless, it will be even more difficult to reduce risk without the ban as a first step.

Not only are restrictions and bans on the most hazardous substances key to reducing the most serious exposure of agricultural workers and their families (in line with the SAICM risk reduction objective), they would also protect the consumers of the agricultural products from residue levels above safety limits. Currently, the TPRI monitors certain pesticide residues in fruits and vegetables for export markets, but while the TFDI has the mandate to monitor food produced for the national market, our interviews revealed that such laboratory monitoring is not yet operational.

4.4 GHS implementation

Chemicals move across borders, via both legal and illegal routes. Continued efforts towards full GHS implementation in collaboration with the other countries in the region would also be a major move forward in chemical safety for the country. GHS implementation, with the resulting improved control of chemical labelling and use of safety data sheets, is the foundation for many other risk reducing activities. Better labelling and safety measures in general would also be a first step to addressing many of Tanzania's most pressing chemical problems, as identified by interviewees.

5 CONCLUSIONS AND WORK AHEAD

This project aimed to find out whether SAICM has contributed to on-the-ground improvements in chemical safety in Tanzania in line with the 2020 goal and, if so, how? We found that SAICM implementation has contributed to an improved situation for several of today's most pressing chemical problems, but that many challenges remain. Several improvements were reported in the mining sector, mainly in chemicals management in large and medium-sized mining enterprises. Regulation of transports of hazardous substances to mining areas has been tightened and there is now a requirement to register any use of cyanide for mining. One example of risk reduction achieved on the ground as a result of the registration procedure has been a reduced number of incidents of cattle drinking cyanide-contaminated water. SAICM implementation has contributed to this achievement through the pilot project and the QSP project on accident prevention and preparedness.

SAICM implementation has started to address some of issues of chemical use in the agricultural sector, for example by improving the registry of pesticide imports held by the TPRI and training farmers in integrated pest management. However agrochemical use and handling is an area where there are still acute needs for additional risk-reducing measures.

SAICM implementation has also contributed to increased awareness about chemicals management, in particular at the political level. Tanzania's hosting of SAICM events has helped to raise the profile of chemicals management on the political agenda. Several interviewees in this study chose awareness raising as the most important indicator of progress towards the 2020 goal.

No significant advances were reported for some of the most pressing chemical problems, such as small-scale wood preservation with copper-chrome-arsenic, chemical use in oil and gas explorations in Tanzanian waters, imports of illegal and substandard chemicals, illegal repackaging and labeling of chemicals, and the lack of a destruction facility for hazardous waste.

In terms of strengthening overall chemicals management, SAICM appears to have contributed to all of the five SAICM objectives, including awareness raising at the political level.

Among the remaining challenges for Tanzania in terms of overall chemical management are the continued need to make the regulatory framework more coherent and to further improve the national coordination on chemicals management.

We offer some policy considerations in light of the project findings. In addition to ongoing efforts, the government of Tanzania could:

- Continue to make the regulatory framework more coherent and further improve national coordination
- Consider the challenges remaining in fully enforcing risk-reducing measures in agriculture, especially banning the import and use of the most hazardous pesticides
- Specifically target unsafe use of chemicals in the informal sector, in parallel with other efforts to improve overall chemicals management, and
- Implement GHS in collaboration with other countries in the region

SAICM/ICCM stakeholders could:

- Do more to share best practices on quick risk-reduction measures in informal sectors (all stakeholders)
- Further encourage private sector stakeholders to contribute to quick risk reduction in informal sector settings by assuming responsibility for chemical safety in the full supply chain (government), and
- Assume full responsibility for chemical risk management along supply chains (private sector actors).

Looking ahead, academia and NGOs need to make further contributions to understanding current chemical use and risks, including in informal settings, and on identifying alternatives to the present uses.

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Annex 1: Interviewees

Interviewees, Dar Es Salaam, 18-22 November 2013

No	Date of interview	Name	Position	Organization	Stakeholder category*
1	18 Nov.	Ms. Nasra Hussein	Standard Officer Environment	Tanzania Bureau of Standards (TBS)	GOV
2	18 Nov.	Dr. Danstan Hypolite	Manager of the Laboratory	Tanzania Food and Drug Authority (TFDA)	GOV
3	18 Nov.	Ms. Catherine Luanda	Acting Manager of the Laboratory	Tanzania Food and Drug Authority (TFDA)	GOV
4	18 Nov.	Ms. Sonia Mkumbwa	Drug Inspector	Tanzania Food and Drug Authority (TFDA)	GOV
5	18 Nov.	Mr. Didas Mutabingwa	Manager for Quality Management	Tanzania Food and Drug Authority (TFDA)	GOV
6	19 Nov.	Mr. Jerome Mathew	Zonal Manager, Coastal Zone	Occupational Safety and Health Agency (OSHA)	GOV
7	19 Nov.	Ms. Magedalena John Mtenga	Assistant Director	Vice President's Office (VPO)	GOV
8	19 Nov.	Mr. Geoffrey Bakanga		Vice President's Office (VPO)	GOV
9	19 Nov.	Mr. Issaria M Mangalili		Vice President's Office (VPO)	GOV
10	19 Nov.	Daniel W. Ndiyo	Manager, Eastern Zone Laboratory	Government Chemist Laboratory Agency (GCLA)	GOV
11	20 Nov.	Mr. James Ngeleja		National Environment Management Council (NEMC)	GOV
12	20 Nov.	Ms. Nancy R. Nyenga	Senior Environmental Management Officer	National Environment Management Council (NEMC)	GOV
13	20 Nov.	Mr. Alfred E. Msokwa	Senior Environmental Management Officer	National Environment Management Council (NEMC)	GOV
14	21 Nov.	Mr. Hadji Rehani		AGENDA	NGO
15	21 Nov.	Mr. Diomedes Pastory Kalisa		Ministry of Agriculture	GOV
16	21 Nov.	Mr. Gasana Rwabufigiri		Ministry of Agriculture	GOV
17	21 Nov.	Mr. Esomih Msuya	Spx specialist	Tanzanian Chamber of Commerce, Industry and Agriculture	PRIV

*Categories are defined as follows: GOV=Staff from government agencies and ministries, NGO=Staff from non-governmental organisations, PRIV=private sector representatives.

Annex 2: Policies, acts and regulations governing chemicals management in Tanzania

Policy/Act	Responsible ministry and other institutions involved^a	Summary of chemical management issues
National Environment Policy, 1997	VPO, NEMC	Provides unifying set of principles for an integrated approach to address the totality of the environment.
National Environmental Management Act, 2004, CAP. 191 Environmental management regulations (hazardous waste control and management), 2009	VPO, NEMC and all other sectors	Management of chemicals and toxic substances, e.g. hazardous waste management and handling, bio-medical waste, pesticides and toxic substances.
Occupational Health and Safety Act, 2003 (repealed the factory ordinance)	Ministry of Labour and Employment, OSHA	General precautions in handling chemicals, provision of chemicals data sheets, labelling of hazardous chemicals.
The Mineral Policy, 2009 and the Mining Act, 2010 The mining regulations of 2010 on safety, occupational health and environment protection	Ministry of Energy and Minerals	Management of mining waste dumps and tailing storage facilities through proper design and maintenance.
National Health Policy, 2007	Ministry of Health, GCLA	Raising public awareness on chemical handling, establishing legislation and regulatory instruments to manage chemicals, establishing enforcement structures, establishing a national information system for chemicals management.
Tanzania Food, Drugs and Cosmetic Act, 2003 (Repealed the Control of Food Quality Act, 1978 and the Pharmaceuticals and Poison Act, 1978)	Ministry of Health, TFDA	Control of imports of medical drugs, herbal drugs or poisons.
Tropical Pesticides Research Institute (TPRI) Act, 1979 Pesticides control regulations	Ministry of Agriculture, Food Security and Co-operatives. TPRI	Ensures pesticides used in the country are effective against target pests and disease and protect users, livestock and the environment against possible harmful effects. Registration of pesticides before they are used in the country.
Industrial and Consumer Chemicals Management and Control Act, 2003 The industrial and consumer chemicals (management and control) regulations, 2004	Ministry of Health GCLA	Introduces measures for the control of production, importation, transportation, storage, handling and placing on the market of industrial or consumer chemicals and their products.
Fertilizer Act, 2009	Ministry of Agriculture, Food Security and Cooperatives	Provides for regulation of manufacturing, import, export, sale and use of agricultural fertilizers.

^a See abbreviations list for full titles of organizations.

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SEI is an independent international research institute that has been engaged in environment and development issues at local, national, regional and global policy levels for more than 25 years. SEI supports decision-making for sustainable development by bridging science and policy.

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