Report of the Sixth Meeting of the
International Network of
Drinking-Water Regulators (RegNet)

Lima, Peru
11-12 September 2013

Public Health, Environmental and Social Determinants of Health
Water, Sanitation, Hygiene & Health
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1 INTRODUCTION

1.1 Background

The International Network of Drinking-Water Regulators (RegNet) was established in 2008 and is hosted by the World Health Organization (WHO), in response to requests from Member States to create a platform to share experiences and to promote good practice relating to drinking-water quality regulation. The overall goal of RegNet is to increase access to safe drinking-water, and consequently ameliorate public health through the improvement of regulatory systems.

For the purpose of RegNet, a water regulator is defined as an entity tasked with ensuring the safety of drinking-water by undertaking all or some of the following functions at national or sub-national level: establishing relevant regulations, carrying out independent surveillance of drinking-water quality and enforcement.

RegNet membership is currently restricted to regulators and by invitation only in order to allow for a space where regulators can discuss issues confidentially. The network functions through a WHO-hosted virtual forum and annual face-to-face meetings. Prior to the 6th RegNet meeting in Lima, Peru, five meetings have been held in Switzerland, Singapore, Canada, South Africa, and Spain in 2008-2012.

The overall goal of the 6th meeting was to optimize the functioning of the network and ensure relevant technical focus areas such that RegNet is of greater utility to drinking-water regulators. The specific objective was to establish a vision and a practical work plan for the working year 2013-2014 (September 2013 to September 2014).

1.2 Participants

Participants included 16 regulators from RegNet and the Region of the Americas, ca. 15 SUNASS (Superintendencia National de Sevicios de Saneamiento) staff members and three WHO staff members. Web broadcasting to allow for remote participation of RegNet members was available on the second day of the RegNet meeting, but was not used due to technical difficulties during the first day.

1.3 Organization of the meeting

The meeting was convened by the Water and Sanitation unit (ETRAS) of the WHO Regional Office for the Americas at the premises of the PAHO/WHO Country Office in Lima, Peru and co-organized by SUNASS the Peruvian drinking-water regulator. The meeting was held in English and Spanish with simultaneous interpretation.

It consisted of a series of plenary sessions with presentations and moderated discussions by themes. Themes discussed included expectations of and experiences with RegNet, possibilities for regulator’s involvement with global monitoring, regulating services beyond utility contracts, enforcement &
regulatory issues and surveillance. The final session integrated the thematic sessions by formulating strategic directions for further development of the network. The agenda is attached as Annex II.

The meeting was held back-to-back with a regional Water Quality Forum organized by ETRAS. All participants of the RegNet meeting also attended the Forum.

2 PROGRAMME SUMMARY & CONCLUSIONS

A detailed description of the meeting proceedings, findings and recommendations per session can be found in annex I.

2.1 Guiding principles & professionalization of RegNet:
There was consensus among RegNet members that it was necessary to professionalize the network. The following guiding principles were identified:

- Confidentiality within RegNet
- Increase the visibility of RegNet
- Increase knowledge sharing among RegNet members
- RegNet should be of use to all WHO Members States, regardless whether their institutions are members of RegNet or not.
- Monitor and evaluate the activities and impact of RegNet

2.2 Commitment
The professionalization of RegNet requires commitment by WHO and RegNet members. Examples of activities to demonstrate commitment by the WHO-hosted secretariat include:

- Responding to identified challenge through facilitated, time-limited technical discussions and webinars
- Clarifying WHO concepts/positions
- Updating members on pending WHO publications on drinking-water quality

Examples of activities to demonstrate commitment by RegNet members include:

- Active participation: meetings or webinars around selected technical themes
- Periodic (e.g. once every two year) sharing of case studies of good practice
- Providing periodic advice to peers

2.3 Priority technical focus areas and other regulatory themes
Several thematic focus areas were identified during the meeting and its preparation, which can roughly be grouped into three large themes:
• Using regulation to reduce inequalities, ensuring access to safe drinking-water for vulnerable population groups
• WHO criteria for acceptance of national regulatory data for global monitoring (quality, representativeness)
• Support understanding of the WHO Guidelines for Drinking-water Quality and facilitate implementation at country-level.

On a more detailed level, the following topics that were discussed at and prior to the RegNet meeting were considered relevant by the networks’ members:

• Use of regulators’ data for global monitoring
• Regulating services beyond utility contracts & pro-poor regulation
• Using health-based targets to adopt the WHO guidelines to national and local circumstances
• Regulating Water Safety Plans (WSPs)
• Collaborative enforcement
• Waivers and derogations
• Water quality regulation and collaboration with economic and environmental regulators
• Addressing water quality and health surveillance in an integrated way

2.4 Work plan 2013-2014
The following items were suggested for inclusion into the 2013-2014 work plan:

• Organization of webinars, open to people interested in regulation beyond RegNet

The RegNet webinars shall be open to RegNet members as well as non-RegNet members in order to a) expose a broader audience to the work of regulators and RegNet as well as b) ensure that RegNet is also a resource for those countries who are still in the process of creating a regulatory entity, and therefore are unable to apply for RegNet membership. These webinars shall be organized on topics that are of relevance to regulators as well as to other water sector stakeholders.

• Organization of RegNet virtual meetings, only open to RegNet members

In addition to annual face-to-face meetings, one virtual meeting shall be held per year in order to increase opportunities for knowledge sharing and confidential discussions among RegNet members. Virtual meetings shall bridge the time between face-to-face meetings and provide another opportunity to ‘meet’, particularly for those that are unable to travel to the face-to-face meetings.

• Organization of face-to-face meetings

Provided that funding is available, one annual face-to-face meeting shall be convened in order to provide a confidential space for RegNet members to discuss and share information, evaluate the progress of the network and to have thematic sessions on previously identified priority topics. Face-to-face meetings shall usually be held back-to-back with other events relevant to regulators in order to minimize travel costs and the ecological impacts of travelling.
• Publication of resources

Document production has always been part of RegNet’s work plan and is a way to provide global guidance as set out in the Network’s terms of reference. In the past, however, it was often expected that network members would take the lead on document production which has led to high expectations that could not be met. Therefore, it has been suggested that the RegNet secretariat will take the lead on document production, but in order to set realistic and achievable goals, the aim should be to publish one document per year only. For 2013-2014, it has been suggested to focus on the Regulatory Scan, a document comparing different drinking-water quality standards of WHO Member States.

• Development of training for regulators

There is a great deal of expertise within RegNet and several RegNet members have put forward the suggestion to develop training for regulators. Pooling the expertise of regulators globally provides an opportunity to increase the visibility of RegNet and a possibility to build capacity and strengthen regulatory systems globally.

• Building an information repository

Information products relevant to drinking-water regulators, written by WHO or other entities are not always easy to find. In order to keep regulators updated about recent products of WHO and to provide a better thematic overview of existing information products, it has been suggested to create a structured information repository.

• Building a new interface for RegNet’s virtual forum, including a database on regulatory issues, an information repository and a function to share experiences from water quality incidents

RegNet’s virtual forum is the main means of communication between RegNet members and the secretariat. It is a platform for confidential discussion and provides the opportunity to share documents. Currently, the network’s virtual forum is based on the WHO-application EZcollab, which does not allow for several functions that are desired by RegNet members and the secretariat, such as the ability to share experiences by organizing and conserving discussions according to specific fora threads. Also, it does not allow for consulting a select group of fellow network members, or to alert RegNet members during or after a water quality incident without sending mass emails. Additionally, it does not have a function to create and consult databases on regulatory topics, or a user-friendly document repository. It has therefore been suggested that the RegNet secretariat explore the possibility to create a new interface similar to the one used by INFOSAN, the WHO and FAO-hosted International Food Safety Authorities Network.

• On demand-support on regulatory questions
In order to improve the visibility of RegNet and working towards the vision that RegNet should be of use to all WHO Member States, regardless whether their regulatory entity is a member of RegNet or not, it was suggested that, RegNet would provide on-demand support on questions regarding regulatory issues. If a country would like to obtain advice on a drinking-water regulatory issue, the question would be, if deemed appropriate by the secretariat in terms of length and content, forwarded to RegNet. The answers/opinions of the responding RegNet members would then be collated, anonymized if desired, and returned by the RegNet secretariat to the authority that has requested the support in an aggregated manner as well as shared with fellow RegNet members.

- Provide input to the JMP Water Quality task force

In the working year 2012-2013 RegNet supported the post-2015 efforts of the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation which is exploring different options to better measure drinking-water safety for global monitoring purposes. One option being explored by JMP includes the use of water quality data collected by regulators. Within RegNet, the topic has been addressed through the development and completion of a survey to better understand the availability of regulatory data on drinking-water quality from water supply systems, households, health care centers and schools and willingness of regulators to share the data for JMP purposes. For the working year 2013-2014, the JMP task force on water quality shall receive input from RegNet on concerns of regulators and unresolved questions coming out of the survey and a few regulators shall be approached for pilot projects.
3 ANNEX

Annex I: Meeting Proceedings

1 Opening session

The meeting was opened by Ana Treasure, WHO Regional Adviser for Water and Sanitation in the Americas, who conveyed greetings of the WHO representative to Peru. She explained that, as in many other Regions, the WHO Region of the Americas has also been observing a shift from communicable to non-communicable diseases as the main public health burden. Against that background, chemicals that impact drinking-water quality, such as polycyclic aromatic compounds from agricultural and illegal mining activities are nowadays increasingly receiving attention, whereas previously there was a focus on microbial contamination of drinking-water alone.

Afterwards, Fernando Momiy Hada, President of SUNASS’s executive council welcomed the RegNet participants. He emphasized the importance of transparent policies to ensure good drinking-water quality. In that context, he mentioned that SUNASS is only responsible for ca. 16.5 million people living in the urban areas of Peru out of a total population of approximately 30 million. He explained that many other Peruvians therefore do not fall under the regulation of any health bureau and that there are regulatory gaps even within the urban areas. He stated that water quality at source is strongly impacted by illegal mining activities and illegal drug production/trafficking while the financial means of water utilities are rather weak, with some being unable to afford chemicals for treatment. In addition, he considered keeping pace with adopting new WHO guidelines a challenge.

His talk was followed by welcoming remarks of Hilda Sandoval, Peruvian Vice-Minister of Housing, Construction and Sanitation. She conveyed greetings of the Minister of Construction and Sanitation and emphasized the importance of drinking-water quality regulation by providing the example that while coverage with improved sources in rural Peru is 64%, only 1% of the rural population is supplied with good quality water. She emphasized the importance of a coordinated approach across ministries, including the Ministry of Health and the Ministry of Finance. Against that background, she mentioned the intention to soon execute the national rural sanitation plan and to update the national water & sanitation service plan, including the law for improving sanitation services.

Subsequently, Bruce Gordon, Acting Coordinator of the Water, Sanitation, Hygiene & Health unit (WSH) in WHO headquarters (Geneva), welcomed the participants. He briefly introduced the work of WSH with its two main teams, ‘monitoring’ which monitors the global situation of drinking-water and sanitation and the ‘water quality’ team which is tasked with normative work (e.g. guideline development). He also presented an overview of RegNet, which has now been in existence for five years and now consists of ca. 40 members from 23 countries across all WHO regions.
Eva Barrenberg, Technical Officer WHO headquarters and coordinator of RegNet, then confirmed the agenda and meeting objectives, which included: optimizing the functioning of the network and ensuring relevant technical focus areas such that RegNet is of greater utility to drinking-water regulators. She also explained that the meeting will have a strong emphasis on active discussions. Afterwards, she introduced the chair of the meeting, Luis Simas, and the rapporteurs Jennifer Mercer and Jamie Lafontaine. These organizational remarks were followed by a participant’s round of introductions.

Oscar Pintos, drinking-water regulator from Argentina and member of ADERASA, the Latin American regional network of drinking-water regulators introduced ADERASA and talked about regulatory challenges in the region. ADERASA was established in 2001 and has 19 members in Latin America and the Caribbean. It is composed of five working groups, being: Benchmarking, Small Operators, Public Operators, Green Regulation and Public Accounting. He explained that not all Latin American/Caribbean countries have a designated regulatory agency and that there is an absence of regulation or scattered regulatory responsibility in several countries. Sometimes, economic and water quality aspects are regulated by separated entities or regulatory responsibility is divided according to urban/rural areas, often with an absence of regulation in rural areas. Other regulatory challenges mentioned were lacking political independence of the regulatory agency, slow progress or stagnation regarding millennium development goal (MDG) achievement, absence of regulatory information and training opportunities.

His presentation was followed by an informal discussion on different approaches globally regarding the separation or integration of economic and water-quality regulation:

- In Portugal, the economic regulator and the drinking-water quality regulator is within the same organization and consolidated policies & opinions are being presented to the public after internal discussions. “Quality at any cost” (intention of drinking-water quality regulator) and “Quality at lowest cost” (intention of economic regulator) are not two mutually incompatible goals. An example was given where the drinking-water quality regulator provided advice to the economic regulator regarding a request for additional disinfection equipment that was not needed for the protection of public health. Through collaboration between the drinking-water quality regulator and the economic regulator, costs could thus be saved without negatively impacting public health. The evidence that informed the advice of the drinking-water quality regulator was obtained through audit-based surveillance.
- In Zambia, tariffs and drinking-water quality standards are set by the same organization.
- In Mozambique and Jamaica, the Ministry of Health sets the drinking-water quality standards, while the regulator is responsible for commissioning and decommissioning of utilities and enforcement. In Jamaica, the regulator is also responsible for regulating electricity and gas prices.
- In England and Wales, economic regulation is separate from drinking-water quality regulation, but there is close coordination. The drinking-water quality regulator is consulted regarding business plans proposed by drinking-water suppliers.
- In Singapore, the water quality regulator, National Environment Agency, and the water service provider, Public Utilities Board, both work under the umbrella of the Ministry of Environment...
and Water Resources (MEWR). MEWR is the agency that determines tap water tariffs in Singapore. *(nb: this information was included into this report after the RegNet meeting)*

- In Costa Rica, drinking-water quality and tariffs are regulated by the same entity.

In spite of the various approaches, there was general consensus among the participants that closer collaboration between drinking-water quality regulators and economic regulators is rather beneficial.

### 2 Session 1: Overview and Expectations of RegNet

**Moderated by Bruce Gordon**

*Rationale: RegNet has been in existence for 5 years now, which is an occasion to look back, evaluate and identify scope for improvement.*

The session on overview and expectations was opened with a brief overview of RegNet’s historical development by Eva Barrenberg. The initial rationale for establishing RegNet was to provide regulators with a confidential space to discuss in order to overcome the isolation of regulators who may face the same experiences in different countries. RegNet was also thought of as a tool to work towards the achievement of the MDGs. Within its five first years, RegNet has grown from 9 regulators from 4 WHO Regions to 43 members from all 6 WHO regions, including ca. 15 very active members.

This introduction was followed by the expectations of and experiences with RegNet from the perspective of a new RegNet member, on which Ram Chan Devkota from Nepal was presenting as well as the perspective from a long-standing RegNet member, on which Chan Chun How and Pranav Joshi from Singapore were presenting. Finally, Eva Barrenberg presented the secretariat’s perspective as well as the results of the internal evaluation that had been conducted in the preparatory phase of the meeting. Both the presentations as well as the discussions were conceptualized as a brainstorming session, at which the following suggestions were put forward:

- Better visibility of RegNet/branding
  - Better use of diverse media incl. popular media
- Regional meetings/workshops/trainings in addition to annual RegNet meetings
  - Video conferencing during annual meetings
- Better coordination with other (WHO-hosted) networks
- Element of monitoring & evaluation of the network’s functioning
- Recognition of active membership
- RegNet as “the voice of regulators”
- Committees/subgroups, regional groups
- Development of a training framework for regulators
- Better accounting for diverse languages
- More knowledge sharing within the network
  - Exchange of skype™ names/other social media contacts
  - Better web-interface that facilitates knowledge sharing (access from smartphones)
- Inventory and explanation of WHO publications/materials, esp. on Water Safety Plans (WSPs)
- Better mechanisms for knowledge sharing between meetings
• online meetings
• regulatory agencies to regularly share a water quality/regulatory issue (e.g. once/two years)

Better mechanisms of knowledge sharing beyond the network
• Webinars
• Provision of help to regulatory agencies/countries wishing to establish regulatory systems
• Continuing to publish publications/materials

Concern was expressed that too much visibility or fast expansion of the network could harm the idea of having a confidential space to discuss. However, arguments were also put forward that there can be confidential discussions even within a well-known organization/entity.

While it was clear during the discussion that not all suggestions can be put into practice in the short run or at all, a lively discussion emerged around the above suggestions. The participants were supportive regarding establishing a monitoring and evaluation framework, more communication and engagement between meetings, of moving to a more user-friendly and modern web-interface and better sharing of information related to outbreaks through the newly proposed web interface. The suggestion that the development of one or two key information products per year should be driven by the secretariat instead of relying on network members for writing was also supported, noting that it is better to set modest goals that are realistic and achievable. The secretariat proposed that for the forthcoming working year, the focus should be on the Regulatory Scan, a report on water quality standards worldwide which has been initiated by RegNet in previous years.

3 Session 2: Global Monitoring
Moderated by Magalhães Miguel

Rationale: the MDGs will come to an end in 2015. Better estimates of drinking-water quality shall be developed for a new generation of indicators.

Bruce Gordon presented on the post-2015 process and the current state of affairs, including WHO’s role in the process. He explained that the MDGs will come to an end in 2015 and that the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation has officially been tasked with the development of new indicators regarding drinking-water, sanitation and hygiene. The currently used drinking-water indicator “use of an improved drinking-water source” has several shortcomings because it is a proxy-indicator for drinking-water safety which is not measured directly. In parallel to the political process which is Member State-driven, the JMP has convened several consultations as well as a water quality task-force meeting. Through the process of the consultations, new indicators were suggested (still in development) as follows:

• Target 1: By 2025 no one practices open defecation.
• Target 2: By 2030 everyone uses a basic drinking-water supply (improved sources within 30 minutes) and handwashing facilities when at home. All schools and health centres provide basic
drinking-water (improved sources on the premises), adequate sanitation (improved latrine, may be shared by limited HH) and hygiene facilities (hand washing & menstrual hygiene)

- **Target 3:** By 2040, everyone uses adequate sanitation at home, the proportion of the population not using an intermediate drinking water supply (improved, on premises, water quality and functional) at home reduced by half, the excreta from at least half of schools, health centres and households with adequate sanitation are safely managed.
- **Target 4:** All drinking-water supply, sanitation and hygiene services are delivered in progressively affordable, accountable, and financially and environmentally sustainable manner.

In the water-quality task-force meeting, the shortcomings of the current drinking-water indicator was discussed and options to overcome these were explored. Several RegNet members had also been present at that meeting which resulted in the recommendation to explore three different options for obtaining water-quality data: (1) household surveys, (2) direct sampling through the Rapid Assessment for Drinking Water Quality (RADWQ) and (3) using water quality data collected by regulators.

In response to the third option, the RegNet secretariat, supported by the University of North Carolina (UNC) has conducted a survey among 55 regulators from 44 countries, across all MDG regions. Eva Barrenberg thanked all RegNet members for participating in and forwarding the survey and presented the results:

- Drinking-water regulation is often a responsibility at sub-national level, particularly in federally-organized countries.
- Ca. 2/3 of survey participants were willing to share their data for global monitoring purposes
- More regulators were willing to share data for urban areas than for rural areas, because data from rural areas is often unavailable (limited testing capacity) and some regulatory agencies’ geographic areas of responsibility are limited to urban areas only.
- General concern was expressed regarding the distinction between rural and urban and many regulators do not use such classifications, use other classifications or have individual definitions of what urban and rural means
- Those who were not willing to share the data mentioned:
  - limited monitoring capacity (no systems of reporting, limited data, no regular monitoring due to limited access to testing lab(s), limited data quality/reliability outside of the capital and major cities)
  - Standards for global monitoring necessary so that those who monitor more do not seem to perform less well.
- In developed regions 90-100% of the population were using sources for which the regulators monitor microbiological water quality and in other MDG regions, the population coverage ranged from 42-100%.
- 26 out of 36 regulators on national level monitor either E. coli or thermotolerant coliforms or both, while 15 out of 16 regulators at sub-national level have such data available.
- There were huge disparities in terms of the number of samples taken per million persons per year between different countries (ranging from 6 to 519 for fluoride and 46 to 4861 for E.coli)
13 regulators (on national level) have indicated to work with geo-referenced data, several others have indicated to explore that option.

She also emphasized that the responding regulators do not represent a statistically representative sample and that in those countries which did not respond, there may be not regulatory agency.

In a second presentation, Eva Barrenberg talked about water quality data from health care centres and schools. One of the shortcomings of the current indicators is that they are being used to monitor the water-supply at the household level, while water quality in schools and health care centres is not assessed although this is where the most vulnerable population groups (i.e. children and the ill) rely on particularly safe water. She stressed that safe water in health care centres in particular, is close to WHO’s core mandate and that a guidance document entitled “Essential Environmental Standards in Health Care” is available. With respect to the survey results, the questions on extra-household settings have triggered a low-response rate which may lead to the assumption that either not many regulators have water quality data for such settings or that interest is generally low. Among those who responded to these questions in the survey, the following findings were made:

- For each MDG region, at least one country reported having data for health care centres and school, except in South-East Asia
- Those who reported not to have data from such settings provided the following reasons:
  - Sampling in extra-household settings/at the point of consumption is not a regulatory requirement or not enforced (lack of power).
  - These settings are not part of the standard surveillance programme.
  - Data that is reported to regulators is often aggregated and does not allow for disaggregation according to special settings, but such data may be available at a lower organizational level, e.g. if the Ministry of Health has a regulatory function, more disaggregated data maybe available from the national public health institute or from the regional public health offices. Sometimes, only the utilities are able to link back the data to a particular location.

Some of the regulators indicated that it would theoretically be possible to identify such locations, but it requires effort and resources.

During the discussion, the following points were raised:

- 30 minutes for water fetching should also include a quantity component, as the quantity withdrawn from the water point is as much of a determinant for the time to fetch water as is the walking distance and time for queuing.
- The goals of “ending open defecation in 2025” and “everybody has basic sanitation by 2040” seem contradictory. Shouldn’t basic sanitation be in place where open defecation has ended?
- WHO needs to define the criteria for country monitoring data, so that countries can ensure that the data is collected this way. This does not only include specifying the relevant parameters, but
also the standards in question, as sampling practices and points of sampling (e.g. in the
distribution system, at tap or at point of use)
  o Some regulators who sample at “consumer’s endpoint” sample at the entrance of the
building, but not at the tap, and vice-versa: “within the network” may signify “at
consumers tap”.
  o Recontamination is an issue even with piped systems into households.
• WHO also needs to define what monitoring will be acceptable i.e. only samples from accredited
labs or also results generated from rapid-testing methods.
  o Careful planning is required: not every lab needs to be accredited for every
pathogen/pollutant.
  o Some contaminants have a stable behavior in water (e.g. arsenic) and so it is fine for
samples to travel for several weeks prior to analysis.
• Several regulators from the WHO Region of the Americas had previously suggested to PAHO that
E. coli is too difficult to measure and that the question should be related to "systems that have
surveillance in accordance with country standards and meet country standards/regulations"
  o The Water Quality Task force had previously made such considerations, but not included
into their recommendations because this would result in another proxy indicator.
• It was also explained that from a normative perspective, every country should be making their
own considerations and specify their standards by using risk-based methods. That should be
accounted for in global monitoring, but must not lead to perverse incentivitation, i.e. encourage
countries to lower their standards in order to be ‘compliant’ in terms of global monitoring.
• It was mentioned that one sample is not enough and that a minimum of one year’s worth of
water quality surveillance data would be meaningful for global monitoring purposes.

In general, there was both support and interest among the regulators in continuing working with
WHO on establishing suitable indicators and a baseline for 2015, but more guidance from WHO or
the JMP would be necessary to ensure fairness.

4 Session 3: Regulating services beyond utility contracts
Moderated by Jennifer Mercer
Rationale: Many people obtain water from sources that fall outside the scope of a formal regulatory
system. This often concerns vulnerable population groups and hamper equitable access to safe water.

The session on regulating services beyond utility contracts was opened by Joselito Riego de Dios,
drinking-water regulator from the Philippines, who provided an overview of such services in his country.
He explained that the drinking-water situation in the Philippines is characterized by high levels of access
due to the creation of financially stable providers, but often poor service quality due to scattered
regulatory responsibility and politically compromised oversight of utilities at local level. There are three
levels of water service provision (stand-alone water points, piped water with a communal water point
and piped water supplies with household connections), which all fall under different jurisdictions and
are subject to different tariffs. Joselito Riego de Dios explained that data on services beyond utility
contracts is hardly available in the Philippines and in the Western Pacific Region in general. Therefore, he provided an estimate for various types of such supplies in the Philippines:

- Mobile/stationary water tankers/carts: ca. 1.4% of the total population.
- Water refilling stations, (located in canteens/restaurants/offices where water is provided free of charge): ca. 20% of the total population.
- Water vending machines/kiosks: no data/only few areas.

Water cart vendors must obtain a business permit which requires a sanitary permit from the municipal public health office. Sanitary permits are valid for one year and are issued subject to three requirements:

- The water sold stems from an approved source.
- Public health officers have inspected the containers used for vending.
- The water distributed must be treated (at least chlorinated).

However, many water vendors obtain neither a business permit nor a sanitary permit and operate illegally. Ways to overcome these challenges would be the passage of a new safe drinking-water act, institutionalization of the WSP approach and better training for technical personnel at locally responsible regulatory agencies.

Finally, Joselito Riego de Dios presented data from Japan:

- There are ca. 500 tanker trucks for emergency use only.
- Ca. 800,000 people make use from private water vendors.
- Ca. 2% of the total population that is supplied by private water vendors falls outside the regulatory scope.

Afterwards, Peter Mutale, drinking-water regulator from Zambia, talked about regulating water kiosk projects in Zambia and encouraging pro-poor tariffs:

- Private water-vending (e.g. from water-carts) is forbidden in Zambia.
- As water supply is concerned, no difference is made between legal and illegal settlements; all people living in peri-urban areas in Zambia should have access to safe and affordable drinking-water.
- All stand-pipes are metered, but the long-term vision is to phase-out stand-pipes (prone to vandalism).
- As a prerequisite for water kiosk project implementation, baseline-information about the urban poor is necessary → a survey was conducted by the Zambian regulator.
- The design of water supplies must be adapted and keep pace with the lifestyle and development in certain peri-urban areas. When household connections are requested by the consumers, these should be provided, as long as it is ensured that they will be metered.
- Too much donor-dependency must be avoided to achieve sustainable results.
- Water kiosks have 8-12 service hours per day (daytime only) and kiosk vendors are paid by 30-40% commission on the water sold. The max. queuing time at a kiosk is 15 minutes and the
price/20 L is 4-6 ngwee (ca. 0.7 - 1 cents USD). Kiosks are also allowed to display public health messages and to sell products other than water.

- In some areas demand for drinking-water and thus kiosk’s revenue is low, because people use water from shallow wells for bathing, cleaning and dish-washing and buy only little water for drinking purposes at the kiosks. In such places, the social business model of kiosks are financially unsustainable.
- Service areas are designed in such a way that poor urban areas are combined with wealthier areas. Concessionaires are obliged to supply water to the urban poor and can cross-subsidize water prices.

Rachid Wahabi, drinking-water regulator from Morocco, then presented on addressing vulnerable population groups from a regulator’s perspective. He explained that the human right to water is recognized in the Moroccan constitution.

- The drinking-water regulator ensures safe and accessible drinking-water for vulnerable population groups through three principles:
  1. Quality required for drinking water is the same at all levels. It is checked at the consumer’s tap, whatever their social status and geographical location.
  2. The Moroccan standard requires that water quality is audited even for small flows
  3. Rates are set according to levels of consumption: the first tranche pricing barely covers the expenses of potabilization and distribution
- In the light of rapid-urban growth, the Government of Morocco, supported by the World Bank has established a large water & sanitation infrastructure programme based on the principle of 'output-based aid'. This principle expects consumers to participate in the connection costs and pay for the water obtained, but the tariffs, payment methods and schedules are adapted to the economic realities of the urban poor.

The main discussion points during this session were: tariffs, water quality, design and construction, surveillance, inspections, and licenses/permits:

- Services beyond utility contracts were defined in many different ways by participants, which shared experiences regarding non-piped systems, non-municipal systems, informal supplies, water kiosks, water supplies on planes and ships, public stand-pipes, wells, carts, and water trucks. Many focused on the provision of drinking-water to the poor.
  - In Paraguay there are so-called “aguateros” (between 270 and 2000 according to different estimates), which refer to private people who dig for water on their land and then distribute it in their neighbourhood illegally and below the radar of any regulatory agency.
  - In Portugal, it is obligatory to be connected to the public water services in order to prevent informal supplies. Until 1 January 2015, exceptions are being made for special cultural communities who are self-supplied for historic reasons, but these have to comply with the national standards for drinking-water quality.
In Jamaica, there are not many informal connections since 99% of the population is supplied with water from the national utility. In very small settlements, there are community-managed supplies, but these need to have a license to operate.

- With respect to tariffs, it can be challenging to design regulations to ensure accessibility for water users that may not be able to cover the full costs of their drinking water. Tools in use by regulators include subsidies, pre-defined and/or limits on tariffs, and requirements within permits/licenses to provide access to the poor (e.g. investment plans).
- Regardless of system size or type, there was general agreement that regulations setting out minimum water quality standards were needed. This requirement was sometime discussed as minimum water treatment standards.
- It was found that there is relatively little guidance regarding requirements for design and construction of supplies beyond utility contracts, which was identified as a topic for more exchange between RegNet members.
- Licenses and permits granted by authorities were identified as key regulatory instruments governing the design, construction, operation, and maintenance of the types of supplies described above.
- Integrity of employees is key and education and training should be a requirement. An example was given where truck drivers would refill tanker trucks from a river to increase personal gains instead of refilling safe water from the utility.
- In light of better knowledge sharing among RegNet members, the following actions were proposed:
  - Jennifer Mercer to post a question on the virtual forum regarding the sharing of existing standards/regulations related to trucked water supplies and cisterns.
  - Alejo Molinari to share operator capacity building e-learning programs, once completed, with RegNet members.
  - Peter Mutale to share the survey method and background information on the water kiosk project in Zambia.

5 Session 4: Enforcement and regulatory issues
Moderated by Eva Barrenberg

Rationale: It is not enough to design regulation and specify drinking-water standards, these also need to be enforced to become an effective mechanism to protect public health.

Marcela Jugo, from SUNASS, spoke about enforcing regulations with limited capacities of the regulatory agency. She explained that while settlements with populations <2000 inhabitants have self-managed supplies, SUNASS is responsible for regulating a number of small, yet urban, utilities throughout Peru. Although many utilities are compliant, she provided examples of a number of mismanaged utilities. Similar to other models discussed, sanctions in Peru begin with written warnings and proceed to monetary sanctions to shut-down of treatment plants. SUNASS supervises treatment plant operations and maintenance procedures, assesses how water suppliers deal with customer complaints and sets commercial, water quality and management targets. In order to carefully deal with SUNASS’s limited
resources (i.e. limit travel and follow-up field visits), utilities can submit photos and invoices showing that they have taken the appropriate action to bring their systems into compliance.

Alejo Molinari, drinking-water regulator from Buenos Aires, Argentina, spoke about enforcing regulations in the context of utilities with limited capabilities.

- Local newspaper tend to publish water quality data, including when water quality issues have been resolved.
- For community supplies, regulators will often have an instructive role.
- Incentive-based enforcement works well in resource-poor settings.
- Fines are usually used to reinvest into infrastructure to make improvements.
- Household water treatment can be issued as an advice if water quality issues cannot be resolved immediately.
- Water safety planning on community level is a means to achieve better water quality results even in resource-limited settings. WSPs provide a useful entry point for regulators to address enforcement issues, however, training on WSPs, especially for small supplies is not readily available.

Dr. Pranav Joshi, a drinking-water regulator from Singapore, spoke about the dilemmas of enforcement faced by regulators. One of the main challenges associated with enforcement is the need to address non-compliance on a case by case basis. It was recommended that - where necessary - a team of experts, including inspectors, lawyers, communications specialists, engineers, and health officials should be involved in decision-making.

Afterwards, the following issues were discussed:

- Three models for enforcing regulations were discussed: top-down (i.e. enforcement pyramid: If non-compliance continues, the response from the regulator intensifies); collaborative; and incentive-based:

<table>
<thead>
<tr>
<th>Options for enforcement</th>
<th>Incentive-based regulation</th>
<th>Collaboration</th>
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<tbody>
<tr>
<td>“top-down enforcement” (enforcement pyramid)</td>
<td>Recognition (e.g. Blue drop Certificate South Africa)</td>
<td>Target setting (action plans)</td>
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<tr>
<td>Legal prosecution (last step)</td>
<td>Public scrutinizing</td>
<td>Providing instructions</td>
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<td>Offer of composition/fine</td>
<td>Economic incentives</td>
<td>Providing help to identify resources</td>
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<td>Suspend licence</td>
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<td>Assist in finding technical solutions</td>
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<td>Written warning</td>
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<td>Verbal warning (first step)</td>
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• These models were not considered mutually exclusive and the following determinants for following each or several of these options were identified:
  o Back-up by regulatory framework
    ▪ Independence
    ▪ Policy & judicial arrangements
  o Cultural preferences
  o Financial sustainability (given the costs to regulators, many indicated that judicial prosecution of non-compliant suppliers was used only as a last resort, in favor of other penalties).
• Within these models, choices are also determined by proportionality and the public health implication(s) (i.e. trading-off short-terms risks vs. long-term risks) of the situation (i.e. non-compliance)
• There was general agreement that, regardless of the model used, the first step is to facilitate compliance with regulations. Achieving compliance through education, awareness-raising, training, and teaching is particularly relevant when regulating small suppliers.
• Another model discussed was ensuring compliance with regulations through collaboration, e.g. by agreeing upon action plans. These action plans are in keeping with and mirror the Water Safety Plan approach, i.e. risk prioritization and management.
• Action plans can also be seen as an intervention when a water supplier is not in compliance.
  o In that context, waivers and derogation procedures were discussed:
    ▪ The European Union Directive allows for three derogations, no more than three years each, for a maximum of nine years.
    ▪ Some regulators only allow ‘waivers’ for a pre-determined length of time. Other regulators found these ‘waivers’ problematic given the design of their regulations, i.e. ten years can pass with no action, after which a request to re-negotiate the action plan can be submitted.
• Regarding enforcement through fines, the following issues were discussed:
  o It is important to ensure that fines are greater than the cost of continuing with non-compliance, to ensure the fines are a financial incentive to coming into compliance.
  o It needs to be ensured that the enforcement body does not benefit from the issuing of fines, by, for example, having the fines paid to the Ministry of Finance. Not doing so could lead to a conflict of interest, real or perceived, and undermine the impartiality and authority of the regulator.
6 Session 5: Surveillance
Moderated by Jamie Lafontaine

Rationale: Alongside with water safety planning and health-based targets, establishing an adequate surveillance system is a key component of implementing the WHO Guidelines for Drinking-water Quality.

Asako Toyozumi, drinking-water regulator from Japan, spoke about a water quality incident at Tone River and the lessons learned from this incident. Two of the key lessons learned were: 1) waterworks should know the risk of a water quality incident occurring and plan accordingly; and 2) responding to a water quality incident requires clear lines of communication. She also highlighted the possibilities of using rapid-testing methods when managing a water quality incident.

Carlos Herrera, drinking-water regulator from Costa Rica, explained the need to align water surveillance data with public health surveillance data. Ministries of Health and the Environment gather relevant data but there is a need to improve sharing and communicating of these data. Integrating drinking-water surveillance data with public health surveillance data, enables a more comprehensive assessment of public health incidents. Another challenge noted was the difficulties in managing the public’s perception of the quality of their drinking-water.

Luis Simas, drinking-water regulator from Portugal, presented considerations in norms development for sampling requirements and monitoring standards, focusing on the European Union Directive and its application in Portugal. As highlighted in the enforcement discussions, when undertaking audits, a multi-disciplinary team, including e.g. engineers, health officials, and laboratory technicians, was recommended as a best practice. In addition to clearly defined roles, responsibilities, and procedures, solutions should focus on local level, water system-specific, decision-making.

The need for clearly defined roles, responsibilities, and procedures was a central theme of the session’s discussion on surveillance. It was noted that:

- There should be standardized methods for taking and testing samples, regardless of whether or not laboratories are accredited.
- There are often multiple stakeholders with responsibilities for identifying and responding to potential drinking-water quality contamination and waterborne illness events, e.g. multiple ministries, regional governments, water system operators. These responsibilities are often fragmented amongst the different stakeholders but, regardless, should be well-defined and coordinated. For example, those with responsibilities for drinking-water quality data should share data and coordinate their surveillance and response activities with those who have responsibilities for data on potential and confirmed illness events and outbreaks, and vice versa.
- Procedures for responding to non-compliance should be defined.
- Emergency management response plans should be in place prior to an incident occurring, so as to reduce response time to incidents and ensure all relevant stakeholders are contacted.

It was suggested that, while Chapter 5 of WHO’s Guidelines for Drinking-water Quality is helpful, more specific tools should be developed to address the above-mentioned challenges, e.g. how to streamline
reporting requirements and how to better align drinking-water quality and epidemiological data. These tools should include best practices and lessons learned.

7 Closing Session
Prior to the conclusion of the meeting, a short discussion was held on the location of the next RegNet meeting. Peter Mutale had suggested to host a meeting in Zambia and Ram Chan Devkota had suggested to host the meeting in Nepal. Ana Treasure also mentioned the possibility to hold a RegNet meeting back-to-back with an annual PAHO symposium, e.g. in 2016. Luis Simas proposed the RegNet meeting to be held in Lisbon, Portugal next year, back-to-back with the IWA World Water Congress where there would also be an opportunity to interact with economic & environmental regulators as well as water practitioners. There was consensus among the participants to explore the option of Lisbon for the forthcoming year and to explore the other options with respect to meetings in the years following 2014. The RegNet secretariat welcomed the proposals and thanked all participants who have offered to hold a RegNet meeting in their country/region.

To conclude the meeting, Bruce Gordon thanked the interpreters and all participants, the WHO Regional Office for the Americas and SUNASS for the organization and realization of the meeting, including the valuable insights and knowledge that was shared by the regulators during the thematic sessions.

Fernando Momiy Hada concluded the meeting by reiterating the relevance of good drinking-water regulation to protect and foster public health and stating that he found the RegNet meeting’s formal and informal discussions and exchange with drinking-water regulators globally very helpful for SUNASS and its staff. He thanked Oscar Pintos who had previously suggested to hold a meeting in Latin America for having established the contact between RegNet and SUNASS. He also thanked the RegNet secretariat and Ana Treasure and her team for the facilitation between the RegNet secretariat and SUNASS for the organization of the meeting.

Finally, Ana Treasure thanked SUNASS for supporting the organization of the meeting and all the regulators attending the meeting. She thanked the RegNet secretariat for having considered the Region of the Americas and expressed her satisfaction about the momentum among the American regulators that the meeting has generated.
### Annex II: Meeting agenda

**Wednesday, 11 September 2013**  
Chair: Luis Simas  
Rapporteur: Jamie Lafontaine

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>08:30 - 09:00</td>
<td><strong>Arrival &amp; Registration</strong></td>
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<tr>
<td>09:00 - 10:15</td>
<td><strong>Opening and introduction</strong></td>
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<td>- Opening remarks (30 min)</td>
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<td>- PAHO/WHO representative, <em>Ana Treasure</em> on behalf of WR Peru</td>
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<td>- SUNASS president, <em>Fernando Momiy Hada</em></td>
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<td>- Deputy Minister for Water &amp; Sanitation, <em>Hilda Sandoval</em></td>
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<td>- Presentation: Overview of RegNet; <em>Bruce Gordon</em> (10 min)</td>
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<td>- Meeting Objectives, agenda &amp; working methods announcement of chair &amp; rapporteur; <em>Eva Barrenberg</em> (3 min)</td>
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<td>- Presentation: Drinking-water regulation in Latin America; <em>Oscar Pintos</em> (10 min)</td>
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<td></td>
<td>- Round of introductions</td>
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<td>10:15 - 10:45</td>
<td><strong>Coffee/tea break</strong></td>
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<tr>
<td>10:45 – 12:30</td>
<td><strong>Session 1: Overview and Expectations of RegNet</strong></td>
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<td><em>Expected outcome: agreement on priority directions</em></td>
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<td>- Presentation: RegNet – historic development of the network, <em>Eva Barrenberg</em> (5 min)</td>
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<td>- Presentation: Expectations of RegNet from a country perspective Nepal; <em>Ram Chan Devkota</em> (10 min)</td>
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<td>- Presentation: Development of RegNet, benefits and scope for improvement from a member’s perspective; <em>Pranav Joshi &amp; Chun How Chan</em> (10 min)</td>
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<td>- Presentation: Present themes and activities &amp; results of internal evaluation; <em>Eva Barrenberg</em> (25 min)</td>
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<td>- Discussion: expectations of RegNet and Vision based on member input moderated by <em>Bruce Gordon</em> (55 min)</td>
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<td>Time</td>
<td>Session 2: Global monitoring</td>
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<tr>
<td>12:30 - 13:30</td>
<td>Lunch</td>
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<tr>
<td>13:30 - 15:00</td>
<td><strong>Expected outcome:</strong> agreement on next steps regarding regulator’s involvement in global monitoring</td>
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<td>- Presentation: Global drinking-water quality monitoring in the context of the post-2015 process, Bruce Gordon (10 min)</td>
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<td>- Presentation: Results of the RegNet/JMP survey and options for next steps; Eva Barrenberg (10 min)</td>
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<td>- Presentation: Water Quality Data from Health Care Centres and Schools; Eva Barrenberg (10 min)</td>
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<td></td>
<td>- Discussion: possibilities for regulator’s involvement in global monitoring moderated by Miguel Malghaes (60 min)</td>
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<tr>
<td>15:00 – 15:30</td>
<td>Coffee/tea break</td>
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<tr>
<td>15:30 - 17:00</td>
<td><strong>Session 3: Regulating services beyond utility contracts</strong></td>
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<td><strong>Expected outcome:</strong> identification of knowledge gaps and summary paper</td>
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<td>- Presentation: Overview of water supplies beyond utility contracts in the WHO Western Pacific Region, Joselito Riego de Dios (10 min)</td>
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<td>- Presentation: Regulating water kiosk projects – the Zambian experience, Peter Mutale (10 min)</td>
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<td>- Presentation: Addressing vulnerable population groups from a regulator’s perspective, Rachid Wahabi (10 min)</td>
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<td>- Discussion: the role of regulators in services beyond utility contracts moderated by Jennifer Mercer</td>
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**Thursday, 12 September 2013**

Chair: Luis Simas  
Rapporteur: Jennifer Mercer

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 4: Enforcement and regulatory issues</th>
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<tbody>
<tr>
<td>09:00 - 10:00</td>
<td><strong>Expected outcome:</strong> global overview of barriers to enforcement of regulations, and options for overcoming these</td>
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<td>- Presentation: Enforcing regulations with limited capacities of the regulatory agency, Marcela Jugo (15 min)</td>
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<td>- Presentation: Enforcing regulations in the context of utilities with limited capacities, Alejo Molinari (15 min)</td>
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<td>Time</td>
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<tr>
<td>10:00 – 10:30</td>
<td><strong>Coffee/tea break</strong></td>
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<tr>
<td>10:30 - 12:30</td>
<td><strong>Session 4 – continued: Roundtable discussion on Enforcement and regulatory issues</strong>&lt;br&gt;<strong>Moderator: Eva Barrenberg</strong></td>
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<tr>
<td>12:30 - 13:30</td>
<td><strong>Lunch</strong></td>
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<td>13:30 - 14:30</td>
<td><strong>Session 5: Surveillance</strong>&lt;br&gt;Expected outcome: identification of knowledge gaps and summary paper&lt;br&gt;- Presentation: The role of rapid-testing methods in managing water quality incidents <em>Asako Toyozumi (10 min)</em>&lt;br&gt;- Aligning water quality surveillance data with public health surveillance data, <em>Carlos Herrera Amiguethi (10 min)</em>&lt;br&gt;- Presentation: considerations in norm development for sampling requirements and monitoring standards, <em>Luis Simas (10 min)</em>&lt;br&gt;-Discussion: present and future developments in surveillance from a regulator’s perspective moderated by Jamie Lafontaine (30 min)</td>
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<tr>
<td>14:30 - 15:00</td>
<td><strong>Session 6: Establishing a RegNet vision and workplan for 2013-2014</strong>&lt;br&gt;Expected outcome: draft vision and options for future development of the network &amp; work plan&lt;br&gt;- Reflection on ensuring the continued functioning of the RegNet based on meeting results</td>
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<tr>
<td>15:00 - 15:30</td>
<td><strong>Coffee/tea break</strong></td>
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<tr>
<td>15:30 – 17:00</td>
<td><strong>Session 6 – continued: Establishing a RegNet vision and workplan for 2013-2014</strong>&lt;br&gt;<strong>moderator: Bruce Gordon</strong>&lt;br&gt;- Summary of knowledge gaps identified during the sessions 2-5&lt;br&gt;- Discussion and agreement on a vision for RegNet, and a workplan for 2013-2014</td>
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