

## Questions asked to stakeholders

1. Does the framework provide a useable, realistic representation of the current situation? Please comment.
2. Which aspects, if any, of the framework diagram are unclear to you?
3. What, if anything, is missing from the framework diagram?
4. Which aspects of the framework diagram would consider of highest priority to the assessment?
5. Please add any additional comments or questions as you see fit.

## Responses

### National Stakeholders

#### UK Stakeholders

##### John Fawell – Independent consultant

1. Yes but the framework on its own doesn't mean very much.
2. The detail underneath and the substances to be considered are vital, e.g. arsenic is entirely natural. It is essential that there is actual measurement. I would be very concerned about many assumptions. Many of the comments relate to exposures that have not only been well studied but show a lack of regard for biological plausibility. As far as I am aware, unless science has been changed completely, dose is still the key in toxicity. Simple correlations are not sufficient.
3. Diffuse sources of contamination. Consideration of other sources of exposure, not just food.
4. Microbiology.
5. It is difficult to comment without some examples of what might be looked at and how exposure will be measured.

#### Finnish Stakeholders

##### Jari Keinänen - Ministry of Social Affairs and Health (STM)

1. Yes.
2. -
3. Exceptional situations (others than waste water) affecting the contamination of raw water or drinking water could be mentioned separately in diagram.
4. Exposure to contaminants and water treatment.
5. -

##### Minna Haski - Ministry of Agriculture and Forestry (MMM)

1. -
2. Is the model strictly limited on drinking water health effects?
3. Is the aspect Finland, Europe or global?

4. How about the effects of climate change on flooding and drought, which may also have health effects?
5. -

**Tiina Torkkeli-Pitkäranta - National Product Control Agency for Welfare and Health (STTV)**

1. Yes.
2. -
3. -
4. -
5. Basically the model looks good.

**Minna Keinänen-Toivola - Drinking Water Institute (DWI)**

1. Basically, the framework is ok. Some things are a bit too detailed, such as examples. The problems are not necessary the same in every country. F.e. DHBs, nitrates and lead are mentioned, but actually they are not that problematic and risky, for example in Finland.
2. There are several stages from climate change to DHPs. It's difficult to see what issues are on the same "level". Climate change f.e. is a background issue that effects all operations and is a risk, whereas certain parameters such as pathogens can be an acute risk.
  1. Biofilms, emerging pathogens (f.e. Legionella, Mycobacteria).
  2. Interactions of water and materials, such as leaching of metals.
  3. Technical quality of water (service life of materials, hardness vs. heart diseases?)
  4. What is acute risk vs. life time risks?
  5. Solutions to risks
3. Water distribution systems; interactions of materials and drinking water.
4. It was not totally clear what is the idea of this project. What is the planned practical outcome of the project?
5. Aspects of UK are maybe too strong.

**Spanish Stakeholders**

**Awaiting comments**

1. -
2. -
3. -
4. -
5. -

**Romanian Stakeholders**

**Awaiting comments**

1. -
2. -

3. -
4. -
5. -

## **Hungarian Stakeholders**

### **Awaiting comments**

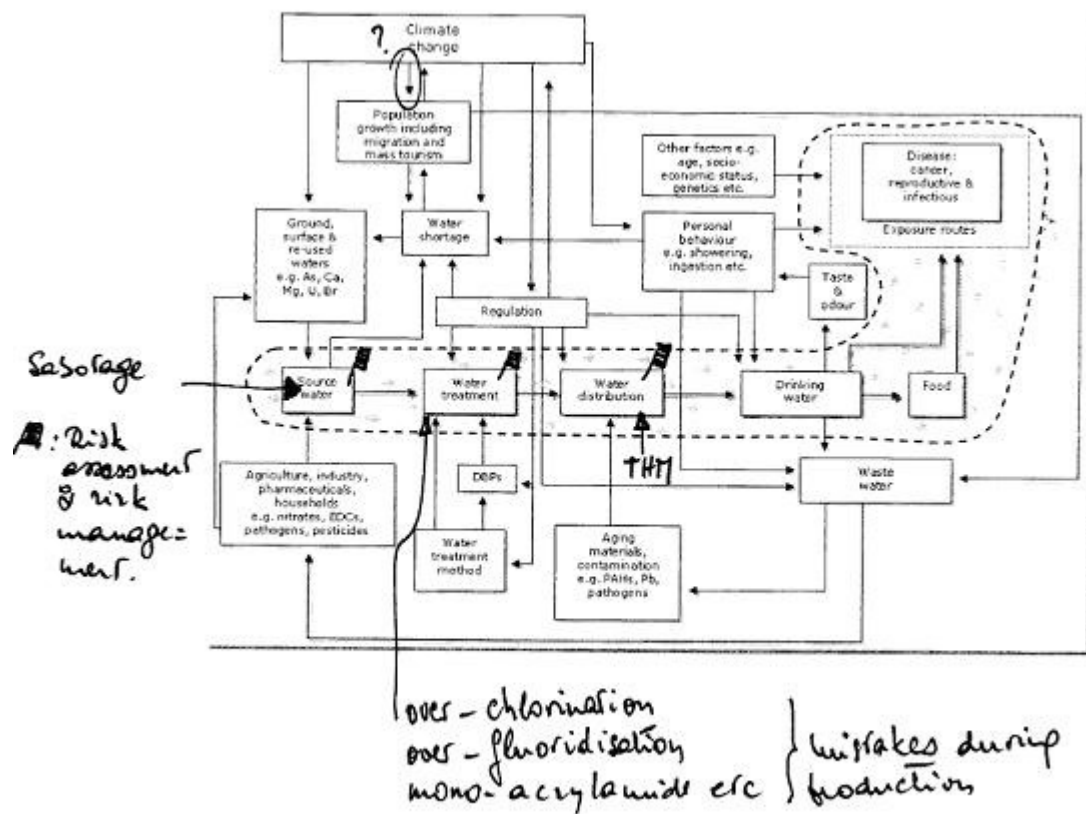
1. -
2. -
3. -
4. -
5. -

## **International Stakeholders**

### **European Stakeholders**

#### **Jan Cortvriend – Water Unit, DG Environment**

1. It is a realistic model. Note that normally no re-used water is used for the preparation of drinking water in the EU.
2. I do not understand the link from climate change towards population growth and mass tourism. On migration the link is clear. Please take into account the possibility of source water contamination by sabotage. The water-treatment may cause pollution itself by excessive chlorination, and uncontrolled fluoridation. Also the water plant may deposit into the water chemicals like monoacrylamide (and others) by wrong use of chemicals during the preparation process. In the distribution phase, THMs may originate due to over-disinfection or nitrites may come up as a result of an anaerobic reaction. In the distribution cycle also endocrine disruptors may enter the water (next to lead) as a result of contact of water with certain plastic pipes.
3. See answer to question 2.
  1. I allowed myself to add some comments on the project graph and scanned this for you (see attached document and reactions on further questions). During the production cycle, a risk analysis and management plan should exist (which I depicted with little flags). See WHO literature relating to Water Safety Plans.
  2. Do you take into account bottled (and mineral) water?
4. Mass tourism, migration, resulting in depletion of natural water stocks; new technologies to prepare drinking water and their impact upon environment, existence of a risk analysis and management.
5. Happy to talk this through.



### Dominique Gatel - Veolia Water/EUREAU

1. Yes. I would also suggest the addition of an arrow certainly from the box "Agriculture, industry etc" towards the box "Water treatment method". There could also be an arrow from the box "Ground, surface, ..." towards this same "Water treatment method" box. One could also add an arrow from box "Agriculture, industry etc" towards "water distribution" (symmetrical to that of Waste water to "Aging material..."). Also, the "Regulation" box now concerns source water and its potential contaminants (think of the Water Framework Directive, the Priority Substance Directive, GWD etc.).
2. None.
3. -
4. Source water composition & potential impact on the burden of disease, taking account presumptive removal by treatment (e.g. for pesticides: 90%).
5. -

### János Fehér - European Topic Centre on Water (ETC/WTR)

1. In general the framework provides a good representation of the current situation. I assume that similar explanations are available for other specific areas than water.
2. After a relatively quick overview of the three page long WP3 Water Policy Scoping Final documentation it seems to me that the strength of actual economy of a country in concern gets low or just hidden consideration in the diagram: i.e.: it is a growing

evidence that in Central and Eastern European countries mineral or bottled water consumption acceleratingly increases. The increased consumption is highly related with increasing economic strength of these countries and the direct use of water from public water supply networks for drinking purpose is decreasing and thus changing the traditional exposure routes to water. The strength of the economy is also dominant factor for regulation and enforcement of pollution abatements.

3. See comments in Q2 box.
4. Source water protection, water and waste water treatment.
5. Can you please send me some more information what way you are thinking of the involvement of the stakeholders in the implementation of the project.

## **Global Stakeholders**

### **Roger Aertgeerts - World Health Organisation**

1. Yes, although I would have liked to see a differentiation between regional (EU) and national/local regulation.
2. Why is the disease outcome limited to non-communicable diseases? The region still suffers from the basic water-related diseases (v hepatitis, typhoid, cholera, ECEH, shigellosis) and sees an increase in emerging diseases such as campylo, crypto and giardiasis. Recent communications from German researchers also drew the attention to the link between viral infections and climate change, while a body of literature exists that draws the attention to emerging chemical toxins linked to changing ecosystems i.e. cyanobacteria and their toxins.
3. The diagram seems to be developed on a one-size-fits-all approach.
  1. I would plead for a recognition of the specificity of water supply in rural areas, particularly Romania, where significant portions of the population do not have access in-house to water supply. Such conditions are not to be compared with those of water supply in a country like the UK and ought to be given special recognition.
  2. In personal behaviour, hand washing should be taken up as a special item.
  3. Similarly, differentiation should be made in the different levels of sanitation, starting with access to improved sources of sanitation, between the different countries giving particular attention to sanitation in rural areas of Romania. The situation there is not to be compared with those in countries that have benefited from the EU UWWD.
  4. The issue of water shortage can not be seen as a stand alone issue with climate change and population growth/tourism as the main drivers. Agriculture and the different types of irrigation if left unchanged is one of the main drivers but controllable. Also I wonder whether population growth per se is a main driver, or whether changing living standards especially in the new EU countries is a main driver. I do not have the relevant literature at hand, but would argue that increase in water consumption of a stable population through access to ever more water-intensive household equipment (washers, dryers, personal irrigation tools, car washes etc etc) is not a stronger driver than population growth as such.
  5. Another driver which is not taken up is the cost of energy in the different countries. Energy prices and their reflection in the unit price of water are a major determinant of water consumption.

4. As a totally neutral WHO staff member, I would suggest that the link between water and disease is a the highest priority ;-).
5. The diagram seems to presume that all water supply systems perform equally well. This is definitively not so. Assessment of the service quality of the supply (interruptions, losses etc) should also be taken into account.