Food and Agriculture Organization of the United Nations

World Health Organization

Joint FAO/WHO Expert Meeting on Microbiological Risk Assessment (JEMRA)

CALL FOR EXPERTS AND DATA ON THE SAFETY AND QUALITY OF WATER USED IN THE PRODUCTION OF FISHERY AND DAIRY PRODUCTS

FAO and WHO are issuing an open call for experts who can contribute to future work of JEMRA in assessing the safety and quality of water used in the production of fishery and/or dairy products.

In addition, FAO and WHO are requesting governments, the industry, academia, consumer groups, laboratories, and any other interested organizations and individuals to submit any available data and information to support this work.

Background

At its 48th session in November 2016, the Codex Committee on Food Hygiene (CCFH) noted the importance of water quality in food production and processing and requested FAO and WHO provide guidance for those scenarios where the use of "clean water" was indicated in Codex texts, in particular, for irrigation water, clean seawater, and on the safe reuse of processing water. In addition, guidance was sought on where it is appropriate to use "clean water".

To facilitate this work, FAO and WHO established groups of experts and convened a series of expert meetings. The first meeting (21-23 June 2017, Bilthoven, the Netherlands) discussed the focus of this work, and the second meeting meetings (14-18 May 2018, Rome, Italy) addressed the work recommended from the first meeting, including fresh produce, fishery and water reuse[1].

As there were still crosscutting challenges in applying a risk-based approach (microbiological criteria, characteristics of microbiological hazards, data for risk assessments, etc.), FAO and WHO convened the third expert meeting (23- 27 September 2019, Geneva, Switzerland), which further explored the safety and quality of water used in the production of fresh fruits and vegetables. The meeting discussed the feasibility and potential application of microbiological criteria for water to support decision-making when applying the concept of "fit-for-purpose" of water for use during pre- and post-harvest production of fresh

[1] FAO and WHO. 2019. Safety and Quality of Water Used in Food Production and Processing – Meeting report. Microbiological Risk Assessment Series no. 33. http://www.fao.org/publications/card/en/c/CA6062EN/.

produce. Practical interventions that could be applied pre- and post-harvest to mitigate food safety risk when water does not meet the requirement of fit-for-purpose were also considered[2].

In 2020, the 43rd session of Codex Alimentarius Commission (CAC) approved the new work entitled "Development of Guidelines for the Safe Use and Reuse of Water in Food Production" proposed by the 51st session of CCFH[3]. This work will elaborate guidelines for the safe sourcing, use and reuse of water in direct and indirect contact with food across the food chain (primary production and processing) by applying the principle of fit-for-purpose using a risk-based approach, including establishing microbiological criteria for pathogens (bacteria, viruses, parasites) in water and definitions. The proposed new Codex Guidelines for water will also follow the example of the overarching Codex General Principles of Food Hygiene[4], Code of Hygienic Practice for Fresh Fruits and Vegetables[5], Code of Practice for Fish and Fishery Products[6], and Code of Hygienic Practice for Milk and Milk Products[7], all of which provide current guidance on the safety requirements for use of water when handling food, particularly on the use of potable water or clean water for agriculture, food handling and processing, water reuse and for the elaboration of ice.

To support this work, the CCFH requested that JEMRA provide the scientific advice on sector-specific applications and case studies for determining appropriate and fit-for-purpose microbiological criteria for water sourcing, use and re-use in (1) fresh produce, (2) fish and fishery products from primary production to retail, and (3) in dairy sector from milk harvest to manufacturing.

As the third meeting already discussed and addressed the issue in fresh produce, this fourth meeting will focus on the quality and safety of water used and re-used in fish and dairy sectors.

This call for experts seeks to identify scientists who, in their individual capacity, can contribute to the successful completion of this task. In addition, we are also seeking data on the safety and quality of water used in the fish and dairy sector that can inform this advice.

The meeting will be convened by virtually from 14 June -2 July 2021.

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[2] The meeting report is in development.

[3] REP20/FH, Para. 116, Appendix V
http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FMeetings%252FCX-712-51%252FReport%252FREP20_FHe.pdf

[4] http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXC%2B1-1969%252FCXC_001e.pdf

[5] http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXC%2B53-2003%252FCXC_053e.pdf

[6] https://apps.who.int/iris/bitstream/handle/10665/336524/9789240013179-eng.pdf

[7] http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXC%2B57-2004%252FCXC_057e.pdf

Scope and Objectives of the Meeting

The purpose of the meeting is to develop clear and practical guidance on the criteria and parameters that can be used to determine if water is 'fit-for-purpose' for sourcing, use and re-use in:

(1) The **fish** sector – the production of fish and fishery products across the food chain (primary production, including shellfish farming, and processing) from the fishing vessel or freshwater production site and throughout processing facilities using a risk-based approach, and

(2) The **dairy** sector - the production of milk and milk products across the food chain from harvest (milking) through to various processing methods and facilities using a risk-based approach.

The objectives of the meeting will be to discuss the safety and the quality of the water used which include:

- Identifying the availability and suitability of the water used and at what point in the food chain it is introduced taking into account:
  - the commodity and product characteristics, associated microbiological hazards, and mitigations (raw vs. cooked); and
  - the production and manufacturing process and geographical considerations.
- Describing the following measures used for assessing "fitness" of water for its intended purpose and the benefits and pitfalls of these different measures:
  - Verification of validated critical control measures (time, temperature, concentration)
  - Counts of bacterial contamination indicators species (*e.g*. *E. coli*)
  - Presence/absence or counts of specific pathogenic organisms (bacteria, viruses, parasites)
  - Ranking of food safety risk based on water contamination type (*e.g*. recovery source, re-use water, reclaimed, reconditioned)
  - Bacterial source tracking to determine species of origin of contamination
  - Non-culture based microbiological methods (PCR, WGS, microbiome analysis)
- Establishing threshold values, risk-benefit tables and/or decision trees to assist in decision making when water meets or exceeds certain criteria and/or parameters.
- Considering practical interventions being used to treat water for direct use and re-use in low- and middle-income countries to achieve an acceptable level of risk based on the intended purpose.
- Developing case studies for different risk-based water use and re-use processing scenarios and species.
- Providing scientific evidence and criteria recommendations for the safety and quality of various types of water used for different production, processing (*e.g*. chilling, brining, washing), transportation, retail sale and consumption (e.g. cooked vs raw) applications.

CALL FOR EXPERTS

The assessment of potential experts will begin on 15 April 2021

FAO and WHO are currently in the process of identifying experts to participate in future work of FAO and WHO in assessing the safety and quality of water used in production of fishery and/or dairy products. All applicants should meet the following general criteria:

- Advanced University/College degree in veterinary medicine, microbiology, food technology, food science, epidemiology, public health, or related fields,
- Experience in food safety/risk analysis related to microbiological hazards in foods,
- At least five years of experience in relevant fields,
- Scientific publications in peer-reviewed journals, in particular relevant publications within the most recent 10 years,
- Good knowledge of the English language, both written and oral, and
- Evidence of leadership or invited participation in national or international scientific bodies, committees, and other expert advisory bodies pertinent to the scope of this work.

Selection of experts

Applicants' curricula vitae (CV) will be reviewed based on the criteria listed above by a selection panel consisting of three or more individuals appointed by FAO or WHO. All qualified individuals will be selected, notified and added to the JEMRA roster of experts that is valid for future work until 31 December 2022. A small number of accomplished individuals will be invited to participate in the proposed upcoming meeting on the safety and quality of water used in production of fishery and dairy products, which is planned for 14 June – 2 July 2021. Selected experts may be required to assist in the preparation of background papers and report drafts (in English). In selecting experts, FAO and WHO will consider, in addition to scientific and technical excellence, diversity and complementarities of scientific backgrounds, and balanced representation from geographic regions, including developing and developed countries, as well as gender. Unsuccessful candidates are not routinely notified.

Appointment of experts

Selected experts will be invited to contribute to the meeting only in their individual scientific capacity. An expert will not represent the government of country of which he or she is a citizen, or the institution with which he or she is associated. The experts designated will not receive any remuneration, however, where a physical expert meeting is held, travel costs, subsistence allowance and other related expenses will be the exclusive responsibility of FAO and WHO.

Applications

Interested applicants should submit their CV. The CV should include a description of education, relevant work experience, evidence of national or international expertise on the topic, including a list of peer-reviewed publications relevant to the factors indicated above (please do not include reprints in your submission unless specifically requested at a later date). Applicants must have a good working knowledge of English as correspondence and meetings will be in English only.

Before participating in any related activity, all the selected experts will be required to declare any potential interests associated with the subjects and substances that will be evaluated. Experts will be asked to

indicate, in writing, all interests (financial and intellectual) on their part or that of their spouse that may affect, or be perceived to affect, their scientific independence as experts, including one or more of the following conditions: employment (past or present) by any commercial enterprise or private or civil sector association; receipt of research or other study grants from such enterprises or associations; shareholdings in commercial enterprises active in fields related to food safety. Identification of an interest does not necessarily indicate a conflict nor automatically exclude an individual from participation. For example, as an expert, it is expected that many, if not all, will be employed in some capacity related to the subject matter. These declarations must be completed and evaluated before a formal invitation will be issued. Declaration documents will be retained by the Joint Secretariat and a summary of declarations will be included in the report of the work. In addition, a confidentiality undertaking must also be completed prior to appointment to ensure proper handling of dossiers and proprietary information.

Deadline

Please submit nominations and CVs at your earliest convenience, but no later than **15 April 2021.**

Submissions in response to the call for experts should be sent to:

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CALL FOR DATA

Deadline: 31 May 2021

FAO and WHO desire that all relevant information and data on the safety and quality of water used in production of fishery and dairy products are considered in their assessment and are thus issuing this international call to raise awareness about data needs and invite all interested parties to provide any relevant information/data, particularly data that may not be readily available in the public domain.

Objectives

The data will serve as inputs to the development of scientific advice on the safety and quality of water use and reuse. This call is aimed to obtain more globally representative data and information on the safety and quality of water used in the production of fish and dairy products.

The purpose of this project is to develop clear and practical guidance on the criteria and parameters that can be used to determine if water is 'fit-for-purpose' for sourcing, use and reuse in the fish and dairy sectors.

Request for relevant information

FAO and WHO want to ensure that all available and relevant information/data are collected, and are requesting governments, the food industry, academia, consumer groups, laboratories, health care providers and any other interested organizations and individuals to submit any available data on the specific areas indicated above. These data may be published or unpublished. Reference should be made to related published studies, where applicable.

List of data and information requirements

Data and information on the following aspects are requested:

A. The type of water (e.g. seawater, greywater, re-use water) used in the fish and dairy sectors

- name of country,
- intended use of the water and the implicated food commodity (i.e. fish, fishery products, milk and milk products),
- the production stage at which the water is used (e.g. primary production, processing, chilling, washing, transportation, retail sale or consumption), and
- other information (e.g. whether there is a mitigation procedure [raw or cooked, pasteurization, sterilization or purification of water etc.])

B. Established microbiological criteria in water sourcing, use and reuse in the fish and dairy sectors from harvest to manufacturing

- type of water and intended use,
- counts of microbiological indicators (e.g. *E. coli*),
- ranking of food safety risk based on contamination type (e.g. seawater, greywater, re-use water),
- operational monitoring programme (sampling point/testing plan/step in the food chain),
- purpose of the testing,

- regulatory testing - testing programs can be mandatory i.e. imposed by the competent authorities or non-mandatory (ex. Industry own testing programs). For each testing program, please indicate if they are mandated by competent authorities or not, and for regulatory testing if they are implemented by the competent authorities or by industry,
- laboratory methods, including non-culture based microbiological methods (PCR, WGS, microbiome analysis),
- corrective actions (e.g. post-application treatments to mitigate food safety risk if water exceeds acceptable criteria), and
- verification and validation of water quality (e.g. critical control points that might be relevant).

C. Specific examples of control measures associated with a Food Safety Management System

- process and product details,
- critical control points and critical limits,
- monitoring and verification activities and deviation protocols, and
- validation studies.

D. Surveillance data and waterborne or foodborne outbreak possibly related to water used/reused in the production of fish and fishery products and milk and milk products

- Surveillance data
  - name of country,
  - presence/absence or counts of specific organisms (bacteria, viruses, parasites),
  - possible origin of contamination, and
  - other information and relevant links (articles, reports, websites, etc.)
- Waterborne or foodborne outbreak
  - time of year and month in which the outbreak occurred,
  - whether the outbreak/cases were confirmed or suspected regarding the link between the water/food vehicle and the outbreak of human cases and how this was determined (e.g. laboratory confirmation, epidemiological investigation, etc.),
  - number of cases, hospitalizations, and deaths associated with the outbreaks,
  - age and sex distribution of cases (e.g. range and median),
  - possible origin of contamination,
  - corrective actions, and
  - other information and relevant links (articles, reports, websites, etc.)

E. Other information

- the availability and suitability of the water for its intended purpose (e.g. the impact of climate change and the need to re-use or recycle water).

Data provider: Please provide name, title and full contact details of the contact person for follow-up and further details, if needed.

Confidential and/or unpublished data

FAO and WHO recognize that some of the information and relevant data which is now required may be unpublished or of a confidential nature. With regard to unpublished information and data, this remains the property of the author for subsequent publication by the owner as original material. Unpublished confidential studies that are submitted will be safeguarded in so far as it is possible to do so without

compromising the work of FAO and WHO. Specific issues relating to confidentiality should be discussed directly between the information and data owners and FAO/WHO. For these and other issues please contact FAO and WHO at the contacts provided.

Deadline

Please submit any relevant information electronically either via e-mail (if not too large) or on a USB stick, in any official United Nations language (English, French, Spanish, Arabic, Chinese, Russian), and with title and short description of the content in English, to the addresses below at your earliest convenience, but no later than **31 May 2021**.

Data submissions in response to the call for data should be sent to:

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