

Report of the

**FAO REGIONAL PROPOSAL DEVELOPMENT WORKSHOP
“ASSISTANCE TO WESTERN BALKAN COUNTRIES FOR IMPROVING
COMPLIANCE WITH INTERNATIONAL STANDARDS FOR AQUATIC
ANIMAL HEALTH”**

Zagreb, Croatia, 7–9 September 2009



Copies of FAO publications can be requested from:
Sales and Marketing Group
Office of Knowledge Exchange, Research and Extension
Food and Agriculture Organization
of the United Nations
E-mail: publications-sales@fao.org
Fax: +39 06 57053360
Web site: www.fao.org/icatalog/inter-e.htm

Report of the
FAO REGIONAL PROPOSAL DEVELOPMENT WORKSHOP “ASSISTANCE TO WESTERN BALKAN
COUNTRIES FOR IMPROVING COMPLIANCE WITH INTERNATIONAL STANDARDS
FOR AQUATIC ANIMAL HEALTH”

Zagreb, Croatia, 7–9 September 2009

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

ISBN 978-92-5-106866-3

All rights reserved. FAO encourages the reproduction and dissemination of material in this information product. Non-commercial uses will be authorized free of charge, upon request. Reproduction for resale or other commercial purposes, including educational purposes, may incur fees. Applications for permission to reproduce or disseminate FAO copyright materials, and all queries concerning rights and licences, should be addressed by e-mail to copyright@fao.org or to the

Chief, Publishing Policy and Support Branch
Office of Knowledge Exchange, Research and Extension
FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy

© FAO 2011

PREPARATION OF THIS DOCUMENT

This document is the final report of the FAO Regional Proposal Development Workshop “Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health,” held in Zagreb, Croatia from 7–9 September 2009.

This activity is one part of the FAO Technical Cooperation Programme TCP/RER/3206 Assistance to Western Balkan Countries for Improving Compliance with International Standards on Aquatic Animal Health.

This report was prepared by Dr Melba B. Reantaso (Aquaculture Officer and also Lead Technical Officer of the TCP) and Dr J. Richard Arthur (FAO Consultant) with contributions from Dr Sanin Tanković and Dr Nihad Fejzić [FAO Consultants from the Technical Cooperation among Countries in Transition (TCCT)].

ACKNOWLEDGEMENTS

Many thanks are due to the staff and officials of FAO Subregional Office for Central and Eastern Europe, the staff and officials of Croatia’s Ministry of Agriculture, Fisheries and Rural Development for various types of assistance in the organization of the workshop. The support of Mr Jiansan Jia and Dr Rohana Subasinghe of the Aquaculture Service (FIRA), Mr Agoston Egyhazy and Mr Thomas Moth-Poulsen (SEUM) of the FAO Subregional Office for Central and Eastern Europe, Mr Raimund Jehle and Mr Goran Stavrik (REUT) of the FAO Regional Office for Europe and Central Asia is also gratefully acknowledged. The kind assistance of Ms Marika Panzironi, Ms Marianne Guyonnet and Ms Tina Farmer of the Fisheries and Aquaculture Department is much appreciated.

FAO.

Report of FAO Regional Proposal Development Workshop “Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health”. Zagreb, Croatia, 7–9 September 2009.

FAO Fisheries and Aquaculture Report. No. 969. Rome, FAO. 2011. 147p.

ABSTRACT

The FAO Regional Proposal Development Workshop “Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health” hosted by Croatia’s Ministry of Agriculture, Fisheries and Rural Development and held in Zagreb, Croatia from 7 to 9 September 2009, was participated by some 30 representatives from the veterinary authorities and other relevant organizations of the five participating Western Balkan countries (Bosnia and Herzegovina, Croatia, The former Yugoslav Republic of Macedonia, Monte Negro, and Serbia); and five representatives from the Food and Agriculture Organization of the United Nations (FAO) (including 1 international and 2 regional consultants).

Representatives of participating countries reviewed recent progress and priorities for national aquaculture development and aquatic animal health management in each country which paved the way for exchanging information and experiences concerning the status of aquatic animal health and programmes for disease diagnosis and prevention in the Western Balkan States.

A major outcome of this workshop was the development of a Regional Technical Cooperation Programme proposal “Assistance to Western Balkan countries for improving compliance to international standards for aquatic animal health”. The proposal was the result of a lengthy consultative and consensus-building process among countries of the Western Balkan Region which started in 2008 under two FAO projects (TCP/BiH 3101 and TCP/RER/3206). The proposal’s overall objective is to improve participating country compliance with international health standards for aquatic animals by addressing key areas identified by the regional needs assessment process so that countries are better able to maintain and improve national aquatic animal health status, harmonize standards regionally, and better comply with the health standard requirements of regional and international trading partners. The specific objectives of the project proposal are to: build regional aquatic animal health capacity; conduct a regional review and assessment of national legislation; design and implement a regional surveillance programme for aquatic animal diseases; and promote national, regional and international communication mechanisms and networking systems for aquaculture development. The development of the proposal was based on the following core principles: regional cooperation, team effort; transparency, and continuity.

CONTENTS

	Page
PREPARATION OF THIS DOCUMENT	iii
ABSTRACT	iv
ACRONYMS	vi
BACKGROUND	1
WORKSHOP PURPOSE, PARTICIPATION, PROCESS AND PRODUCTS	1
OPENING OF THE WORKSHOP	2
WORKSHOP HIGHLIGHTS	2
CLOSING OF THE WORKSHOP	7
APPENDIXES	
I. Workshop programme	9
II. List of participants	11
III. List of presentations	15
IV. Western Balkans regional aquatic animal health capacity and performance survey: summary of survey results and analysis	16
V. Draft regional TCP proposal: <i>Assistance to Western Balkan countries for improving compliance to international standards on aquatic animal health</i>	125

ACRONYMS

AAC	aquatic animal commodities
AAD	aquatic animal disease
AAH	aquatic animal health
BMPs	better management practices
BiH	Bosnia and Herzegovina
CA	competent authority
CCA	Central competent authority
CVO	Chief Veterinary Officer
DVM	Doctor of Veterinary Medicine
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreement on Tariffs and Trade
HACCP	Hazard Analysis and Critical Control Points
HC	health certificate
IHN	infectious haematopoietic necrosis
IPN	infectious pancreatic necrosis
(I)RA	(import) risk analysis
ISA	infectious salmon anemia
KHV	Koi herpes virus
LBM	live bivalve mollusc
NGOs	Non-governmental Organizations
OIE	World Organisation for Animal Health
PVS	Performance of veterinary services
SBVI	Sector for Border Veterinary Inspection
SVC	spring viraemia of carp
SVO	State Veterinary Office
SWOT	strengths, weaknesses, opportunities and threats
TCCT	Technical Cooperation among Countries in Transition
TCP	Technical Cooperation Programme
VER	viral encephalopathy and retinopathy
VHS	viral haemorrhagic septicaemia
WTO	World Trade Organization

BACKGROUND

1. A Technical Cooperation Programme (TCP) of the Food and Agriculture Organization of the United Nations (FAO) – TCP/BiH/3101 project “Strengthening Capacity on Aquaculture Health Management” was officially approved on 14 June 2006 and had the development objective of increasing the effectiveness and efficiency of the State Veterinary Office of Bosnia and Herzegovina in aquatic animal health management. This objective supported sustainable and healthy aquaculture production that will enable the country to improve the value and efficiency of aquaculture production through the implementation of international animal health and food safety standards, especially those of its trading partners in Europe and neighbouring countries. One of the specific objectives of the above project was to disseminate the project outcomes to neighbouring trading partners in order to promote future cooperation in aquaculture and aquatic animal health management in the region. As part of the above TCP, the FAO Western Balkan Regional Seminar/Workshop on Aquatic Animal Health was undertaken from 19 to 21 May 2008 in Sarajevo, Bosnia and Herzegovina. This regional seminar/workshop represented the final regional activity of the TCP.

2. As an outcome of the above regional workshop, a TCP facility, TCP/RER/3206 Assistance to Western Balkan Countries for Improving Compliance with International Standards on Aquatic Animal Health, aimed at preparing a further regional proposal to FAO was approved in early 2009. The process of developing a regional TCP consists of the following activities: (i) a regional survey of aquatic animal health capacity and performance (May to August 2009) involving five countries in the Western Balkan region (i.e. Bosnia and Herzegovina, Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia), (ii) regional field assessment (May to August 2009), (iii) survey analysis and regional proposal preparation, and (iv) regional workshop.

3. This report presents the results of item (iv), the Regional Proposal Development Workshop “Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health,” held in Zagreb, Croatia from 7–9 September 2009.

WORKSHOP PURPOSE, PARTICIPATION, PROCESS AND PRODUCTS

4. The Workshop programme is presented as Appendix I and is briefly summarized below.

Purpose

5. The objectives of the Regional Workshop were to: (1) present the outcomes of regional field assessment conducted from May to August 2009 involving the five Western Balkan countries; (2) present the analysis of the Western Balkan Regional Aquatic Animal Health Capacity and Performance Survey; (3) present recent developments in the aquaculture sector of each participating countries including priorities with respect to aquatic animal health management; (4) deliberate and build consensus on the essential components of the draft regional TCP proposal including implementation plan, time-line and responsibilities and (5) finalise the regional TCP proposal for submission to FAO and other interested donors.

Participation

6. Some 30 representatives from the veterinary services and other relevant organizations of the five participating Western Balkan countries (Bosnia and Herzegovina, 4; Croatia, 15; The former Yugoslav Republic of Macedonia, 4; Montenegro, 4 and Serbia, 3); one representative from the European Union and five representatives from FAO (including one international and two regional consultants) participated in the workshop. A List of participants is given in Appendix II.

Process

7. The workshop followed the general format of plenary presentations (opening presentations, outcomes of country field assessments, summary and analysis of the Regional Aquatic Animal Health Capacity Survey, five country aquaculture and aquatic animal health management reviews, and a draft Regional TCP Proposal). Group discussion and refinement of the draft proposal then followed and a revised draft proposal was presented and discussed. A proposed implementation plan, time-line and responsibilities were then presented, discussed and approved. A final presentation summarized the conclusions arising from the workshop and the way forward.

Products

8. The products of the workshop include: (i) exchange of information and experiences concerning the status of aquatic animal health and programmes for disease diagnosis and prevention in the Western Balkan States, (ii) Report of the Western Balkans Regional Workshop (this report), which also contains two important documents, namely: (1) Western Balkans Regional Aquatic Animal Health Capacity and Performance Survey: Summary of Survey Results and Analysis (Appendix IV) and (2) a Regional TCP Proposal: *Assistance to Western Balkan Countries for Improving Compliance to International Standards on Aquatic Animal Health* (Appendix V).

OPENING OF THE WORKSHOP

9. Opening remarks were provided by the Director and Chief Veterinary Officer (CVO) of Croatia's Ministry of Agriculture, Fisheries and Rural Development, Dr Sanja Šeparović; Fisheries and Aquaculture Officer of FAO Subregional Office for Central and Eastern Europe, Mr Thomas Moth-Poulsen; and the Director of the State Veterinary Office (SVO) and CVO of Bosnia and Herzegovina, Dr Drago N. Nedić. They welcomed the participants and wished everyone a productive and successful meeting and recognized the importance of aquaculture to the region and the need to focus efforts on sustainable aquaculture production through effective aquatic animal health management.

WORKSHOP HIGHLIGHTS

13. The workshop had three sessions, namely: Session 1 with four presentations; Session 2 with six presentations; and Session 3 with two presentations and a wrap-up conclusion and the way forward. A list of presentations can be found in Annex III.

Outcomes of each session

Session 1

13. Presentation 1 "*Introduction – backgrounder to project and workshop*" was delivered by FAO Aquaculture Officer and Lead Technical Officer of TCP/RER/3206, Dr Melba B. Reantaso, who stressed the need for regional cooperation on aquatic animal health management in the Western Balkans, and outlined the goals of the workshop (see paragraph 5). The presentation set the tone for the discussions to follow.

14. Presentation 2 "*Outcomes of field assessments in Serbia and Croatia*" was delivered by Dr Sanin Tanković, TCCT¹ Consultant. The overall objective of the field mission, conducted in May and August 2009, was to understand the field situation, to have the opportunity to meet face to face with the representatives of the relevant stakeholders, to collect the information concerning survey, to get

¹ Technical Cooperation among Countries in Transition

information on government priorities and interest with respect to aquatic animal health and generate support for a regional programme. During the mission in both countries, relevant competent authorities, veterinary institutes, and fish farms were visited. Both countries have supported the project, and concluded that aquaculture is becoming more and more important. It was also concluded that Croatia would host regional workshop, and all related activities in that sense, including preparation of prospectus, and appointment of the focal point. Furthermore, during the mission, minimum required data for the Terms of Reference for Focal Points have been agreed.

15. Dr Nihad Fejzić, TCCT Consultant, delivered Presentation 3 “*Outcomes of field assessments in Macedonia and Montenegro*”, conducted in September 2009 by him and Dr J. Richard Arthur. In both countries, veterinary authorities are the competent authorities on aquatic animal health and biosecurity of fish farms. A regional approach to managing aquatic animal health was supported by stakeholders met during the mission who also expressed interest in the following aspects: implementation of international and European Union (EU) legislation, appointment of national focal points, particular interest in transfer of knowledge, capacity building, improvement of diagnostic capacities, sharing of information and exchange of experiences, emphasis on the need for scientifically-based surveillance and the important role of aquaculture in agricultural production.

16. Dr J. Richard Arthur, FAO International Consultant, made the fourth presentation on “*An analysis and summary of the FAO Regional Aquatic Animal Health Capacity Survey Questionnaires in the Western Balkans*”. The purpose of the survey was to obtain information on national capacity and agencies implementing aquatic animal health programmes from the five participating countries, to collect essential information for support of the development of the aquaculture sector, and to discuss components and activities that might be included in the regional TCP project. The survey questionnaires, based on a previous FAO aquatic animal health capacity surveys done for the Middle East and the South African regions, consist of 17 different sections, as follows: (1) international trade in live aquatic animals and national border controls, (2) control of domestic movement of live aquatic animals and other domestic activities that can spread the pathogens, (3) policy and planning, (4) legislation, (5) disease surveillance, (6) disease diagnostic, (7) emergency preparedness and contingency planning, (8) extension services, (9) compliance, (10) research, (11) training, (12) expertise, (13) infrastructure, (14) linkages and cooperation, (15) funding support, (16) current challenges and constraints and (17) aquaculture trends, resources and production data. The full analysis and summary can be found in Appendix IV.

Session 2

17. During Session 2, country presentations prepared by representatives of the veterinary authorities of five Western Balkan regional countries (Albania, Croatia, Montenegro, The former Yugoslav Republic of Macedonia, Serbia) reviewed the recent developments and priorities for national aquaculture development and aquatic animal health management in each country. The last presentation under Session 2 was about the Regional TCP proposal “Assistance to Western Balkan Countries for Improving Compliance to International Standards on Aquatic Animal Health.

18. Dr Almedina Zuko, in her presentation on “*Recent developments and priorities on aquaculture and aquatic health management in Bosnia and Herzegovina*”, described the historical development of the aquaculture in the country, including basic information on hydrography and ichthyofauna, and the aquaculture profile in terms of production, species and export capacities. Bosnia and Herzegovina has a long history of aquaculture production. Since 1886 up to present, the country has seen both progress and stagnation (due to war) in aquaculture development. Serious development started again in 2004, when the Council of Ministries of Bosnia and Herzegovina recognized possibilities in aquaculture development and gave full power to the SVO of Bosnia and Herzegovina in organizing veterinary service in aquaculture. The hydrological resources of the country belong to the river basin of the Black and Adriatic Sea with 20 000 km of rivers and brooks, 400 hectares of lakes

and 1 400 hectares of seacoast. The main cultured species are salmonid species (rainbow trout, brown trout, brook char, grayling) with current production of 3 500 tonnes; cyprinid species (common carp, silver carp, sheat fish, zander), with current production of 3 000 tonnes; and marine fish species (European seabass, gilt-head seabream, dentex, Mediterranean mussel, oyster), with 200 tonnes production capacity. The presentation also covered activities of the National Reference Laboratory for viral fish diseases, including data on disease surveillance, presence of certain fish diseases in the country, diagnostic methods in use, training of the laboratory staff, collaboration with the other laboratories and with the EU Community Reference Laboratory, implemented project activities, and targeted surveillance results. While the country has the advantage of having high quality and clean water, cheap and educated employees, strong capability to establish factories for fish processing, and good hatcheries, there are a number of weaknesses. These include low domestic fish consumption, lack of domestic production in fish feed, limited purchasing power of consumers, weak road infrastructure, uncoordinated market, and low subsidies. Bosnia and Herzegovina has achieved export of fishery products to the EU market, with four establishments obtaining EU export license number. The presentation concluded with a list of activities identified as needed in the future; these include: complete harmonization with the EU legislation, accreditation and equipping of laboratories, uniform registration of all fish farms, continuing monitoring of fish diseases, residues and other contaminants.

19. The presentation by Dr Ivica Sućec on “*Recent developments and priorities on aquaculture and aquatic health management in Croatia*” introduced the organization of veterinary service in Croatia, the legislative framework on aquatic animal health, and future activities. Aquatic animal health surveillance is conducted on all fish and mollusc farms, as well as the open waters. Planned future activities include implementation of EU legislation, zoning, development of annual inspection plans, emergency preparedness and awareness. The presentation also described issues related to the establishment, development and operations of the National Reference Laboratory, including data and results of the obligatory surveillance, and most often encountered diseases. The following were presented as priorities: development of management model focused on preventive measures and diagnostic procedures taking into the consideration epidemiological situation in trading partner countries; current epidemiological situation in the close vicinity is considered as very unfavorable for Croatian aquaculture; unknown health status of neighboring countries; main concern for carp culture taking into consideration heavy losses due to koi herpesvirus (KHV) in other countries; establishment of the regional network for immediate exchange of information; and assistance in diagnostic work.

20. Dr Olivera Kamaranova, in her presentation on “*Recent developments and priorities on aquaculture and aquatic health management in The former Yugoslav Republic of Macedonia*” gave an overview of the veterinary service in The former Yugoslav Republic of Macedonia, legislative framework in aquatic animal health, responsibilities concerning aquatic animal health and safety, import of aquaculture and import risk management measures, as well as the information on aquatic animal health surveillance. The presentation included disease data based on surveillance, current aquaculture capacities and production, crucial factors for international trade with live aquatic animals, including membership in the World Organisation for Animal Health (OIE) and the World Trade Organization (WTO), and policy and planning issues regarding national aquatic animal health. Current priorities regarding national aquaculture policy include improvement of export management, development of modern aquaculture production through increasing the number of fish farms and production; and improvement of aquatic biosecurity management in aquaculture.

21. Dr Tatjana Babović, in her presentation on “*Recent developments and priorities on aquaculture and aquatic health management in Montenegro*” noted the importance of the fishery sector to the economy of the country, with almost 630 persons employed in the sector. The share of fisheries sector in the national gross domestic product is 0.5 percent and 3.1 percent of the gross product of the agricultural sector. About 3 000 tonnes of fish are produced from both capture fisheries and aquaculture. These consisted of 2 300 tonnes from capture fisheries (1 700 tonnes seafish, 600 tonnes of freshwater fish) and about 700 tonnes from trout and marine fish (sea bream, sea bass and shellfish) farming. Freshwater fish catch comes mainly from the Skadar Lake, predominantly carp.

There are 24 freshwater farms, 2 marine fish farms, 16 shellfish farms, 2 facilities for fish processing, and 3 facilities for export of marine fish caught in EU countries. Priorities of the aquaculture strategy of Montenegro focus on strengthening the competitiveness of the fish processing industry, creating a favourable environment for investment in the fisheries sector and the domestic fishing fleet renewal, improving facilities, well as to support the safety of fishery products through the introduction of necessary changes in national legislation in the field of food safety and improvement of laboratories dealing with chemical and microbiological analysis. Additional future priorities for aquaculture in Montenegro include harmonizing EU legislation with national legislation, strengthening of administrative capacities, human resource development, standardization of laboratory procedures, drafting of guidelines/manuals/technical materials and improving cooperation at all administrative levels.

22. Dr Nebojša Jovanović, in his presentation on “*Recent developments and priorities on aquaculture and aquatic health management in Serbia*” reported on the historical development and facts concerning aquaculture sector in the country, and presented the outcomes of a SWOT² analysis for the aquaculture sector. Information on water resources, aquaculture production, organization of competent authorities and legislative framework on aquatic animal health were presented. The presentation also described project- and research-related activities and their implementation, development and operations of national laboratory, including data and results of the diagnostic tests of aquatic animals.

23. Dr J. Richard Arthur, FAO International Consultant, presented a draft Regional TCP Proposal “*Assistance to Western Balkan Countries for Improving Compliance to International Standards on Aquatic Animal Health*”, developed by the FAO Project Team. The overall objective of the proposal was to improve compliance of participating countries to international standards on aquatic animal health. The proposal had four specific objectives: (1) capacity building of regional competent authorities; (2) review of national legislation and its harmonization with relevant international standards; (3) establishment of regional surveillance programme; and (4) promotion of communication mechanisms and networking system for aquaculture development. Implementation of the project will be achieved through five technical workshops on the following subject areas such as risk analysis; surveillance, monitoring and reporting; diagnostics; legislation; and aquaculture development and promotion. Project implementation will be handled by a Regional Project Coordinator, five Country Focal Points and to be supported by regional experts, international consultants and FAO backstopping officers.

Session 3

24. Two presentations were delivered and a wrap-up Conclusion and the Way Forward served as the final input to the workshop.

25. Dr J. Richard Arthur, presented the final draft of the Regional TCP proposal. Following additional discussion, the revised proposal was accepted by the five participating countries. The major components of the proposal are as follows:

Overall Objective: To improve participating country compliance with international health standards for aquatic animals.

- Four specific objectives:
 - build capacity on specific themes (legislation, risk analysis, surveillance (aquatic epidemiology), diagnostics, emergency preparedness/contingency planning, aquaculture development and promotion);
 - review of national legislation to harmonize with respect to compliance with international standards on aquatic animal health (WTO-SPS, OIE, EU);

² strengths, weaknesses, opportunities and threats.

- design a regional disease surveillance programme for aquatic animal diseases (regional in scope, e.g. five Western Balkan countries, surveillance design based on international standards);
- promote communication mechanisms and networking systems for aquaculture development.
- Working principles:
 - regional cooperation; national interest to benefit from such mechanism;
 - team effort: every activity will be jointly lead by a team (FAO, Regional Project Coordinator, Focal Point, Regional/International Experts), regional participants and other interested partners (e.g. OIE, EU, donors);
 - transparency: using a communication portal – Western Balkan Aquatic Animal Health website (project-based): English and regional language;
 - continuity and forming a core group of AAH: 4 participants from each country; 2 of which will be participating in all activities;
 - 4-month interval for preparatory work and implementation of activities;
 - publication outputs in English;
 - workshops with simultaneous translation.
- Expected outputs:
 - improved national and regional capacity;
 - core group of AAH;
 - wide range of publications (training/workshop/meeting reports, diagnostic manual, surveillance design, emergency/contingency plan, aquaculture profile, promotional materials, national/regional strategy)
 - portal of communication (website);
 - high level political will/commitment;
- Proposed sponsorships of regional training/workshops:
 - legislation/risk analysis – Croatia;
 - surveillance – Serbia;
 - diagnostics – Bosnia and Herzegovina;
 - emergency preparedness/ contingency planning – The former Yugoslav Republic of Macedonia;
 - aquaculture promotion/strategy – Montenegro;
 - high level meeting/Project terminal workshop – Bosnia and Hertzegovina;

26. On behalf of the Project team, Dr. Nihad Fejzić, then presented a proposed workplan, time-frame and responsibilities for further development and submission of the final proposal to FAO. The workplan, and responsibilities were then discussed in detail by the participants and following discussion and revisions, consensus, on the structure and contents, reached among the five participating countries.

27. The Workshop concluded with a plenary presentation by Dr Melba Reantaso which summarized the results of the workshop and presented the steps that would need to be taken to finalize project activities and the submission of the final regional proposal to FAO for funding consideration.

The main conclusions included the following:

- active participation and strong interest and support in the development of the proposal;
- strong support (4/5 CVOs, competent authorities, laboratories, research institutes and universities);
- systematic, logical and transparent process (two regional workshops, regional survey, country level field assessment/stakeholder consultation);

- strong consensus on the scope and elements of regional proposal through regional cooperation.

28. The Way Forward included the following: publication of workshop report which will contain workshop highlights, the analysis of the survey and a complete Regional TCP proposal.

CLOSING OF THE WORKSHOP

29. The workshop organizers, FAO and Croatia's Ministry of Agriculture, Fisheries and Rural Development, thanked all the delegates for their fruitful contributions which made the workshop a successful event. The participants thanked FAO for a well organized meeting and the local host for the hospitality.

APPENDIX I

Workshop Programme

7 September 2009 (Monday)	Arrival of participants
20.00	Welcome dinner
8 September 2009 (Tuesday)	
08.30–09.00	Registration
09.00–09.30	Opening Session
	Opening and welcome remarks: Dr Sanja Šeparović (Chief Veterinary Officer of Croatia) Dr Thomas Moth-Poulsen (FAO Subregional Office for Central and Eastern Europe) Dr Drago Nedić (Chief Veterinary Officer of Bosnia and Herzegovina)
09.30–09.45	Self-introduction of participants
	Session 1
09.45–10.00	Presentation 1 Introduction – Backgrounder to project and workshop (Dr Melba B. Reantaso, FAO)
10.00–10.30	Coffee break
10.30–10.50	Presentation 2 Outcomes of field assessments in Serbia and Croatia (Dr Sanin Tanković, FAO)
10.50–11.10	Presentation 3. Outcomes of field assessments in The former Yugoslav Republic of Macedonia and Montenegro (Dr Nihad Fejzić, FAO)
11.10–11.40	Presentation 4. Analysis of the Survey Questionnaire on Aquatic Animal Health Performance and Capacity in Western Balkan States (Dr J. Richard Arthur, FAO)
11.40–12.20	Discussion
12.10–13.30	Lunch break
	Session 2
13.30–13.45	Presentation 5 Recent developments and priorities on aquaculture and aquatic health management in Bosnia and Herzegovina (Dr AlmedinaZuko)
13.45–14.00	Presentation 6 Recent developments and priorities on aquaculture and aquatic health management in Croatia (Dr Ivica Sucec)
14.00–14.15	Presentation 7 Recent developments and priorities on aquaculture and aquatic health management in The former Yugoslav Republic of Macedonia (Dr Olivera Karamanova)

14.15–14.30	Presentation 8 Recent developments and priorities on aquaculture and aquatic health management in Montenegro (Dr Tatjana Babović)
14.30–14.45	Presentation 9 Recent developments and priorities on aquaculture and aquatic health management in Serbia (Dr Nebojša Jovanović)
14.45–15.30	Presentation 10 Regional Technical Cooperation Programme Proposal: Assistance to Western Balkan Countries for Improving Compliance to International Standards on Aquatic Animal Health (Dr J. Richard Arthur, FAO)
15.30–16.00	Coffee break
16.00–17.30	Discussion
19.30	Dinner
9 September 2009 (Wednesday)	Session 3
08.30–09.30	Presentation 11 Final draft of Regional TCP Proposal (and discussion) (Dr J. Richard Arthur, FAO)
09.30–10.30	Presentation 12 Implementation plan, time-line and responsibilities (and discussion) (Dr Nihad Fejzić, FAO)
10.30–11.00	Coffee break
11.00–12.00	Conclusion and Way Forward (Dr Melba Reantaso, FAO)
12.00–14.00	Lunch break
14.00	Departure of participants

APPENDIX II

List of participants

BOSNIA AND HERZEGOVINA**Dr Drago N. Nedić**

Director - CVO
 Veterinary Office of Bosnia and
 Herzegovina
 Radićeva 8/I, 71 000 Sarajevo
 Tel.: +387 33 565 700
 Fax: +387 33 565 725
 E-mail: drago.nedic@vet.gov.ba

Dr Darko Čobanov

Deputy Director
 Veterinary Office of Bosnia and
 Herzegovina
 Radićeva 8/I, 71 000 Sarajevo
 Tel.: +387 33 565 702
 Fax: +387 33 565 725
 E-mail: darko.cobanov@vet.gov.ba

Dr Almedina Zuko

Dean
 Faculty of Veterinary Medicine in Sarajevo
 Zmaja od Bosne 90, 71 000 Sarajevo
 Tel.: +387 33 610 908
 Fax: +387 33 610 908
 E-mail: alma.zuko@vfs.unsa.ba

Dr Adnan Jažić

Professor
 Center for Fish Diseases
 Faculty of Veterinary Medicine in Sarajevo
 Zmaja od Bosne 90, 71 000 Sarajevo
 Tel.: +387 33 658 275
 Fax: +387 33 658 275
 E-mail: adnan.jazic@vfs.unsa.ba

CROATIA**Dr Sanja Šeparović**

Director - CVO
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary directorate
 Miramarska 24, Zagreb
 Tel.: +385 1 6106 207
 Fax: +385 1 6109 207
 E-mail: sanja.separovic@mps.hr

Dr Ankica Labrović

Head of Animal Health Sector
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary directorate
 Miramarska 24, Zagreb
 Tel.: +385 1 6106 670
 Fax: +385 1 6109 207
 E-mail: labrovic@mps.hr

Dr Zoran Rogić

Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary Directorate
 Miramarska 24, 10000 Zagreb
 Tel.: +385 1 6106 444
 Fax: +385 1 6109 207
 E-mail: zoran.rogic@mps.hr

Dr Vesna Petek

Expert Adviser
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary Directorate
 Miramarska 24, 10000 Zagreb
 Tel.: +385 1 610 9444
 Fax: +385 1 610 9207
 E-mail: vesna.petek@mps.hr

Dr Ivica Sucec

Expert Associate
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary Directorate
 Miramarska 24, 10000 Zagreb
 Tel.: +385 1 610 9594
 Fax: +385 1 610 9207
 E-mail: ivica.sucec@mps.hr

Dr Gordan Jerbic

Director
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary Inspection Directorate
 Miramarska 24, 10000 Zagreb
 Tel.: +385 1 6109 499
 Fax: +385 1 6106 462
 E-mail: gordan.jerbic@mps.hr

Dr Mario Rogošić

Veterinary inspector
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary Inspection Directorate
 Miramarska 24, 10000 Zagreb
 Tel.: +385 1 6106 443
 Fax: +385 1 6106 462
 E-mail: mario.rogosic@mps.hr

Dr Ljerka Fučkala

Veterinary inspector
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary Inspection Directorate
 Miramarska 24, 10000 Zagreb
 Tel.: +385 1 6109 756
 Fax: +385 1 6106-462
 E-mail: ljerka.fuckala@mps.hr

Dr Miomir Križanac

Veterinary inspector
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary Inspection Directorate
 Vladimira Nazora 53, 22000 Šibenik
 Tel.: +385 22 213-519
 Fax: +385 22 244 104
 E-mail: miomir.krizanac@si.t-com.hr

Dr Pavle Geyer

Veterinary inspector
 Ministry of Agriculture, Fisheries and
 Rural Development
 Veterinary Inspection Directorate
 Vukovarska 1, 31540 Donji Miholjac
 Tel.: +385 31 630 725
 Fax: +385 31 235 532
 E-mail: mpsvi27@mps.htnet.hr

Dr Drazen Oraic

Head of Laboratory for Fish Patology
 Croatian Veterinary Institute
 Savska cesta 143, 10000 Zagreb
 Tel.: +385 1 6123 614
 Fax: +385 1 6190 841
 E-mail: oraic@veinst.hr

Dr Snjezana Zrncic

Senior assistant
 Croatian Veterinary Institute
 Laboratory for Fish Pathology
 Savska cesta 143, Zagreb
 Tel.: +385 1 6123 614
 Fax: +385 1 6190 841
 E-mail: zrncic@veinst.hr

Dr Željka Matašin

Professor
 Veterinary Faculty
 Heinzelova 55, 10000 Zagreb
 Tel.: +385 1 2390 150
 Fax: +385 1 2441 390
 E-mail: zeljka.matašin@vef.hr

**THE FORMER YUGOSLAV REPUBLIC
OF MACEDONIA****Dr Dejan Runtevski**

Director CVO
 Veterinary Directorate-MAFWE
 Treta Makedonska Brigada bb
 1000 Skopje
 Tel.: +389 2 311 22 10 loc. 305
 Fax: +389 2 311 22 10 loc. 315
 E-mail: druntevski@veterina.gov.mk

Dr Olivera Karamanova Dimovska

Assistant for border veterinary inspection
 in Sector for BIP
 Veterinary Directorate-MAFWE
 Treta Makedonska Brigada bb, 1000
 Skopje
 Tel.: +389 2 311 22 10 loc. 309
 Fax: +389 2 311 22 10 loc. 315
 E-mail: okaramanova@veterina.gov.mk

Dr Marija Manevska

Assistant for Border Veterinary Inspection
 in Sector for BIP
 Veterinary Directorate-MAFWE
 Treta Makedonska Brigada bb, 1000
 Skopje
 Tel.: +389 2 311 22 10 loc. 309
 Fax: +389 2 311 22 10 loc. 315
 E-mail: m.manevska@gmail.com

Dr Miso Hristovski

Dean and Head of the Department
Biology and Pathology of Fish, Honeybees
and Wildlife
Faculty of Veterinary Medicine
University "Ss. Cyril and Methodius" Skopje
Lazar Pop-Trajkov 5-7, 1000 Skopje
Tel.: +389 2 3240 728
Fax: +389 2 3114 619
E-mail: hristovskim@fvm.ukim.edu.mk

MONTE NEGRO**Dr Tatjana Babović**

Senior Adviser
Veterinary Administration
Bul.Sv.Petra Cetinjskog br.9
81000 Podgorica
Tel.: +382 20 201 945
Fax: +382 20 201 946
E-mail: babovict@mn.yu

Dr Ljiljana Milovanović

Veterinary inspector
Veterinary Administration
Bul.Sv.Petra Cetinjskog br.9
81000 Podgorica
Tel.: +382 20 201 945
Fax: +382 20 201 946
E-mail: ljiljana.milovanovic@mn.yu

Dr Milan Kragulj

Veterinary inspector
Veterinary Administration
Maršala Tita br. 52
85000 Bar
Tel.: +382 85 311 873
Fax: +382 85 311 873
E-mail: kragulj-jovovic@cg.yu

Dr Bojan Adžić

Senior Assistant
Diagnostic Veterinary Laboratory
Bulevar Dzordza Vasingtona bb
81000 Podgorica
Tel.: +382 20 269 405
Fax: +382 20 269 404
E-mail: bojan.adzic@vetlab.co.me

SERBIA**Dr Zoran Mićović**

Director CVO
Ministry of Agriculture, Forestry and
Water management/Veterinary Directorate
Omladinskih brigada 1, 11000 Belgrade
Tel.: +381 64 868 00 01
Fax: +381 112602 320
E-mail: vetuprava@minpolj.gov.rs

Dr Nebojša Jovanović

Senior Associate
Department for international trade
Ministry of Agriculture, Forestry and
Water management/Veterinary Directorate
Omladinskih brigada 1, 11000 Belgrade
Tel.: +381 11 3196 011
Fax: +381 11 2602 320
E-mail: nebojsa.jovanovic@minpolj.gov.rs

Dr Sanja Čelebićanin

Senior Associate
Department for international trade
Ministry of Agriculture, Forestry and
Water management/Veterinary Directorate
Omladinskih brigada 1, 11000 Belgrade
Tel.: +381 11 2605 630
Fax: +381 11 2602 320
E-mail: s.celebicanin@minpolj.gov.rs

Dr Dobrila Jakic – Dimic

Director
Institute of Veterinary Medicine of Serbia
Vojvode Toze 14
11000 Belgrade
Tel.: +381 11 260 4020
Fax: +38163 363 202
E-mail: nivs@net.yu

FAO**Dr J. Richard Arthur**

Box 1216
Barriere, B.C.
Canada V0E 1E0
Tel.: (250) 672-0221
E-mail: jrarthur@telus.net

Dr Nihad Fejzić

TCCT

Koševska bb

71000 Sarajevo

Tel.: +387 61 48 11 16

Fax: +387 51 462 302

E-mail: nihad.fejzic@hea.gov.ba

Dr Thomas Moth-PoulsenFisheries Officer for Central and Eastern
Europe (SEU)

Benczur Utca 34

Budapest, Hungary

Tel.: +36 1 461 2019

Telefax: +36 1 351 7029

E-mail: Thomas.Mothpoulsen@fao.org

Dr Melba B. Reantaso

Aquaculture Officer

Aquaculture Service (FIRA)

Fisheries and Aquaculture Department
of the Food and Agriculture Organization
of the United Nations (FAO)

Viale delle Terme di Carcalla

00153 Rome, Italy

Tel.: +39 0657054843;

Fax: +39 0657053020

Cell.: +39 3408584179

E-mail: Melba.Reantaso@fao.org

Dr Sanin Tanković

TCCT

Džamijska 5, 71000 Sarajevo

Tel.: +387 62 34 25 26

Fax: +387 33 565 727

E-mail: sanin.tankovic@vet.gov.ba

APPENDIX III**List of presentations**

- Presentation 1: Introduction – Backgrounder to project and workshop (Dr Melba B. Reantaso, FAO)
- Presentation 2: Outcomes of field assessments in Serbia and Croatia (Dr Sanin Tanković, FAO)
- Presentation 3: Outcomes of field assessments in The former Yugoslav Republic of Macedonia and Montenegro (Dr Nihad Fejzić, FAO)
- Presentation 4: Analysis of AAH Performance and Capacity Survey Questionnaires (Dr J. Richard Arthur, FAO)
- Presentation 5: Recent developments and priorities on aquaculture and aquatic health management in Bosnia and Herzegovina (Dr Almedina Zuko)
- Presentation 6: Recent developments and priorities on aquaculture and aquatic health management in Croatia (Dr Ivica Sucec)
- Presentation 7: Recent developments and priorities on aquaculture and aquatic health management in The former Yugoslav Republic of Macedonia (Dr Olivera Karamanova)
- Presentation 8: Recent developments and priorities on aquaculture and aquatic health management in Montenegro (Dr Tatjana Babović)
- Presentation 9: Recent developments and priorities on aquaculture and aquatic health management in Serbia (Dr Nebojša Jovanović)
- Presentation 10: Regional Technical Cooperation Programme Proposal: Assistance to Western Balkan Countries for Improving Compliance to International Standards on Aquatic Animal Health (Dr J. Richard Arthur, FAO)
- Presentation 11: Final draft of Regional TCP Proposal (and discussion) (Dr J. Richard Arthur, FAO)
- Presentation 12: Implementation plan, time-line and responsibilities (and discussion) (Dr Nihad Fezjic, FAO)

APPENDIX IV

**Western Balkans regional aquatic animal health capacity
and performance survey:
Summary of survey results and analysis**

by

**J. Richard Arthur
Melba G. Bondad-Reantaso
Sanin Tanković
Nihad Fejić**

Arthur, J.R., Bondad-Reantaso, M.G., Tanković, S. and Fejić, N. 2011. Western Balkans regional aquatic animal health capacity and performance survey: Summary of survey results and analysis. *In* FAO. 2011. Report of the Regional Proposal Development Workshop “Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health”. FAO Fisheries and Aquaculture Report. No. 969. Rome, FAO. pp.16-124.

CONTENTS

Background	18
Purpose	18
Survey structure and process	19
Preparation of the survey summary and analysis	19
Section 1. International trade in live aquatic animals and national border controls	21
A. Relevant International Memberships	21
B. Legislation Relevant to Aquatic Animal Health	26
C. Trade in Live Aquatic Animals and Use of Health Certification.....	28
C.1 Exportations	28
C.2 Importations	31
D. Risk Analysis Capacity	38
Section 2. Control of domestic movements of live aquatic animals and other domestic activities that may spread pathogens.....	40
Section 3. Policy and planning.....	44
Section 4. Legislation.....	52
Section 5. Disease surveillance/monitoring	54
Section 6. Disease diagnostics	58
Section 7. Emergency preparedness/contingency	64
Section 8. Extention services	67
Section 9. Compliance/enforcement	69
Section 10. Research.....	73
Section 11. Training.....	77
Section 12. Expertise	81
Section 13. Infrastructure.....	83

Section 14. Linkages	85
Section 15. Funding support	90
Section 16. Current challenges and constraints	92

Annexes

Annex I	Questionnaire survey form
Annex II	List of persons completing the survey questionnaire
Annex III	Identification of competent authorities for various aspects of aquatic animal health
Annex IV	List of publications related to aquatic animal health in The former Yugoslav Republic of Macedonia

BACKGROUND

This regional survey of aquatic animal health capacity and performance was recommended by the recent Western Balkan Regional Seminar on Aquatic Animal Health, an activity under the FAO/TCP/3101/BiH “Strengthening Capacity on Aquaculture Health Management in Bosnia and Herzegovina” held from 19 to 22 May 2008 in Sarajevo and was strongly supported by representatives of the following participating countries [Bosnia and Herzegovina (BiH), Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia]. It is one of a series of activities being conducted under a TCP Facility from the FAO (TCP/RER/3206) entitled “Assistance to Western Balkans Countries for Improving Compliance with International Standards for Aquatic Animal Health,” an initiative that is expected to lead to the development of a proposal for an FAO Regional TCP Project “Assistance to Western Balkan Countries for Improving Compliance to International Standards on Aquatic Animal Health”.

The regional survey provides background information for assessment of the current status and future needs in aquatic animal health capacity and expertise of countries in the Western Balkans Region that will assist in formulating a proposal for an FAO Regional TCP Project. The activities conducted under the TCP Facility support included the following: (i) assessment of institutional and human resource capacities on aquatic animal health at national level through a questionnaire survey, (ii) follow-up field visits to verify survey results and collect additional key data, (iii) preparation of a proposal for a Regional TCP Project and (iv) organization of a regional workshop to present the results of the survey, and further develop and achieve consensus on the regional TCP project proposal.

PURPOSE

The seven countries comprising the Western Balkans (Albania and the newly independent nations of the former Yugoslavia – Bosnia and Herzegovina, Croatia, The former Yugoslav Republic of Macedonia, Montenegro, Serbia and Slovenia) have a long history of aquaculture. These countries are in the process of developing modern aquaculture production systems as a means of providing healthy low-cost protein to their citizens and generating export earnings. The region has an advantageous situation with regard to aquaculture development, having large areas of high-quality fresh waters, skilled and relatively inexpensive labour, and proximity to large markets in the European Union (EU).

To realize this potential, Western Balkan countries are attempting to develop the capacity to meet international standards for trade in live aquatic animals (fish, crustaceans and molluscs) and their products. Primary among these are the standards of the World Organisation for Animal Health (formerly the Office International des Epizooties, OIE) as expressed in the OIE *Aquatic Animal Health Code* and *the Manual for Diagnosis of Aquatic Animal Diseases*, the Sanitary and Phytosanitary Agreement (SPS Agreement) of the World Trade Organization (WTO), and the standards for market access as required by the EU, as expressed in various EU Directives. Achieving these goals requires meeting high standards for aquaculture production, including a high level of capacity to address issues related to the control and prevention of aquatic animal diseases.

The purpose of this survey was to obtain information on national capacity and the agencies mandated to implement aquatic animal health programmes for five Western Balkans regional countries (Bosnia and Herzegovina, Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia). The survey also collected relevant information essential to support the development of the aquaculture sector through healthy aquatic production and sought opinions on the components and activities that might be included in a regional aquatic animal health strategy. The results of this survey will help guide regional and national strategic planning for improving aquatic animal health and assuring adequate and rational support services to achieve sustainable aquaculture development.

SURVEY STRUCTURE AND PROCESS

The scope of the survey and the associated survey form¹ were jointly developed by the Food and Agriculture Organization of the United Nations (FAO), Fisheries and Aquaculture Department, Aquaculture Service (FIRA), Aquaculture Officer (M.B. Reantaso), the FAO International Consultant (J.R. Arthur) and the FAO TCCT² Consultants (S. Tanković and N. Fejić). The finalized survey questionnaire was sent by e-mail to the Competent Authorities (CA) of the five participating countries with instructions that it should be completed by the national CA or other senior government officer with primary responsibility for national aquatic animal health issues, with the assistance of national aquaculture experts and concerned laboratory personnel. The completed surveys were to be returned to FAO by early June (in the case of BiH, Croatia and Serbia) or the end of August 2009 (in the case of The former Yugoslav Republic of Macedonia and Montenegro), so as to be available for discussion during field visits by the two FAO consultancy teams (M.B. Reantaso and S. Tanković to Croatia and Serbia during 24 May to 7 June 2009, and J.R. Arthur and N. Fejić to The former Yugoslav Republic of Macedonia and Montenegro from 25 August to 2 September 2009). Using the completed survey returns, the FAO's International Consultant was to prepare a document summarizing the results of the survey returns and containing an analysis of the results. The summary and analysis of survey returns, as well as an outline for a regional programme based on the survey and other relevant sources of information, were then presented during the Regional Proposal Development Workshop "Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health", held in Zagreb, Croatia from 7 to 9 September 2009. The initial draft document served as a basis for discussion and further elaboration of a regional aquatic animal health development programme, including recommendations for implementation, during a brainstorming exercise that was undertaken during the regional workshop.

The survey questionnaire contains 17 sections pertaining to: (1) international trade in live aquatic animals and national border controls, (2) control of domestic movement of live aquatic animals and other domestic activities that may spread pathogens, (3) policy and planning, (4) legislation, (5) disease surveillance/monitoring, (6) disease diagnostics, (7) emergency preparedness/contingency planning, (8) extension services, (9) compliance/enforcement, (10) research, (11) training, (12) expertise, (13) infrastructure, (14) linkages and cooperation, (15) funding support, (16) current challenges, and constraints and (17) additional information (a blank Survey Questionnaire is appended as Annex I).

PREPARATION OF THE SURVEY SUMMARY AND ANALYSIS

Survey forms were returned by the focal points of all five participating countries. A list of people completing the Survey Questionnaire is given as Annex II. Checking of forms for completeness and collation of data were carried out by the International and TCCT Consultants. During compilation of the survey results, missing or incomplete data for some questions were encountered and responses occasionally required further clarification. Thus all respondents were again contacted and requested to provide further specific information, as needed.

The results of the survey are presented in this document in tabular form, the sequence of presentation of information following the sequence of Sections and Questions used in the Western Balkans Regional Aquatic Animal Health Capacity and Performance Survey form (see Annex I). During preparation of this summary, responses have been edited for English language and to reduce length; however, all significant information provided in the original survey forms has been retained. For each of the 17 Sections of the Survey Questionnaire, a written **Summary of results** detailing important

¹ The original concept of developing a survey questionnaire to assess aquatic animal health capacity and performance stemmed from an aquatic biosecurity capacity building project implemented by FAO for southern African countries between 2008–2009, as support to the development of a regional aquatic biosecurity framework for southern Africa. The original survey questionnaire was jointly developed by FAO Consultant Dr Ramesh Perera and FAO Aquaculture Service Officers, Drs Rohana P. Subasinghe and Melba Reantaso.

² Technical Cooperation among Countries in Transition.

features of the results is presented, which is followed by a brief **Analysis** of the significance of the results with regard to current and future development of aquatic animal health capacity in the Western Balkan region. Original survey forms as completed by the respondents for each country are retained by FAO.

Results of the survey questionnaire, summarized in tabular form, are cross-referenced to the original survey questionnaires, with each table caption providing a reference to the sections of the questionnaire covered by that table. Additionally, where relevant, individual table column headings are accompanied by numbers (given in parentheses) indicating the precise question for which results are summarized.

The following abbreviations are used throughout the summary tables:

- AAH = aquatic animal health
- AAC = aquatic animal commodities
- BiH = Bosnia and Herzegovina
- HC = health certificate
- NA = Not applicable (question or portion of question was not applicable to the country situation)
- NR = No response (Respondent did not reply to question)
- OG = Official Gazette

SECTION 1. INTERNATIONAL TRADE IN LIVE AQUATIC ANIMALS AND NATIONAL BORDER CONTROLS

A. *Relevant international memberships*

Summary of results

Table 1A summarizes the status of participating countries with regard to membership in the World Organisation for Animal Health (OIE), the World Trade Organization (WTO) and the European Union (EU) (Survey Questionnaire Parts 1.1–1.7). All five participating countries are members of the OIE, while two countries (Croatia and The former Yugoslav Republic of Macedonia) are members of the WTO. No participating countries are members of the EU, although Croatia and The former Yugoslav Republic of Macedonia are official candidate countries and BiH, Montenegro and Serbia are official potential candidate countries. BiH, Croatia and Montenegro are approved to export certain aquatic animal commodities to the EU.

Analysis

Membership of countries in international bodies such as the OIE, WTO, EU, etc. requires that countries abide with the conditions of membership, thus placing obligations upon the Competent Authorities in terms of implementation and compliance with the provisions embodied in those agreements and memberships.

The World Organisation for Animal Health (<http://www.oie.int>), created in 1924 as the Office International des Épizooties (OIE), is the intergovernmental organization responsible for improving animal health worldwide. As of April 2009, the OIE had a total of 174 Member Countries and Territories. The OIE maintains permanent relations with 36 other international and regional organizations and has Regional and Sub-regional Offices on every continent. Worldwide aquatic animal health is protected and maintained through its *Aquatic Animal Health Code* (the “Code”), and *Manual of Diagnostic Tests for Aquatic Animals* (the “Manual”, available at: http://www.oie.int/eng/normes/fmanual/A_summry.htm?e1d11). The OIE Aquatic Animal Health Standards Commission prepares these standards with assistance of internationally renowned experts and also oversees OIE’s activities on aquatic animal health (http://www.oie.int/aac/eng/en_fdc.htm).

One of the main objectives of the OIE, within its mandate under the World Trade Organization’s *Agreement on the Application of Sanitary and Phytosanitary Measures* (SPS Agreement) is to safeguard the world trade by publishing health standards for international trade in animals and animal products. OIE’s main normative work on aquatic animals is articulated through the Code and Manual, which provide a range of tools that assist OIE member countries in preventing and controlling aquatic animal diseases. OIE’s programme is based on a broad combination of activities, including listing of serious diseases of international importance; disease surveillance, monitoring and reporting; contingency planning; disease zoning; standardized diagnostics testing; use of international health certificates; risk analysis; designation and evaluation of Competent Authorities; etc.

As OIE members, all participating countries are obligated to apply the various standards and procedures as outlined in the Code and Manual. In addition to other monthly and annual reporting responsibilities to the OIE, the National Veterinary Services of OIE member countries are obligated to immediately report (within 24 hours):

- for OIE-listed DISEASES, (i) the first occurrence or re-occurrence of a disease in a country or ZONE or COMPARTMENT of the country, if the country or ZONE or COMPARTMENT of the country was previously considered to be free of that particular DISEASE; or (ii) if the DISEASE has occurred in a new host species; or (iii) if the DISEASE has occurred with a new pathogen strain or in a new DISEASE manifestation; or (iv) if the DISEASE has a newly recognized zoonotic potential; and
- for DISEASES not listed by the OIE, if there is a case of an EMERGING DISEASE or pathogenic agent should there be findings that are of epidemiological significance to other countries.

The World Trade Organization (WTO) (<http://www.wto.org/>) is an international organization with headquarters in Geneva, Switzerland, designed to supervise and liberalize international trade. The WTO was established on 1 January 1995 and is the successor to the General Agreement on Tariffs and Trade (GATT). The WTO deals with the rules of trade between nations at a near-global level. It is responsible for negotiating and implementing new trade agreements and is in charge of policing member countries' adherence to all WTO agreements.

The WTO is concerned with aquatic animal health to the extent that the occurrence of aquatic animal diseases may be used to restrict trade in aquatic animals and their products between WTO member countries. Rules for the application of sanitary measures to protect member countries from serious diseases that may be spread via international trade are outlined under the *Agreement on Sanitary and Phytosanitary Measures*³. The WTO has recognized the OIE as the reference organization for aquatic animal health issues. In general, sanitary measures above those specified in the OIE Code must be justified by risk analysis.

The European Union (EU) is an economic and political union of 27 member states, located primarily in Europe (<http://europa.eu/>; http://en.wikipedia.org/wiki/European_Union).⁴ Committed to regional integration, the EU was established by the Treaty of Maastricht on 1 November 1993 upon the foundations of the pre-existing European Economic Community. With almost 500 million citizens, the EU generates an estimated 30 percent (US\$18.4 trillion in 2008) of the nominal gross world product. The EU has developed a single market through a standardized system of laws that apply in all member states, ensuring the freedom of movement of people, goods, services and capital. It maintains common policies on trade, agriculture, fisheries and regional development. A common currency (the euro) has been adopted by 16 member states that are thus known as the Eurozone. The EU has developed a limited role in foreign policy, having representation at the WTO, G8 summits and at the United Nations (UN). It enacts legislation in justice and home affairs, including the abolition of passport controls between many member States.

The EU operates through a hybrid system of supranationalism (e.g. majority voting and directly applicable laws) and intergovernmentalism (e.g. consensus bargaining by states). Important institutions and bodies of the EU include the European Commission, the Council of the European Union, the European Council, the European Court of Justice and the European Central Bank. The European Parliament is elected every five years by member states' citizens, to whom the citizenship of the EU is guaranteed.

To join the EU, a country must meet the Copenhagen criteria, defined at the 1993 Copenhagen European Council. These require a stable democracy that respects human rights and the rule of law; a functioning market economy capable of competition within the EU; and the acceptance of the obligations of membership, including EU law. Evaluation of a country's fulfillment of the criteria is the responsibility of the European Council.

The membership of all five participating countries in the OIE and of two of the five countries in the WTO provides participating countries with a common, agreed-upon formal methodology and structure (as outlined in the OIE Code and Manual) for conducting trade in live aquatic animals and which can

³ The SPS Agreement, available at: http://www.wto.org/english/docs_e/legal_e/15-sps.pdf

⁴ Members of the EU include: Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. Three countries are official candidate countries (Croatia, The former Yugoslav Republic of Macedonia and Turkey) and five others are officially recognized as potential candidates (Albania, Bosnia and Herzegovina, Montenegro, Serbia and Iceland). Kosovo is also listed as a potential candidate but the European Commission does not list it as an independent country because not all member States recognize it as an independent country separate from Serbia.

be used in developing national and regional aquatic animal health programmes. Additionally, the actions initiated by all participating countries to access EU markets for aquatic animal commodities and to eventually achieve EU membership requires improvements in many areas of national aquatic animal health policy, capacity and management so as to be able to meet EU standards.

Table 1A. Relevant international memberships (Questionnaire Parts 1.1–1.7)

Country	(1.1) OIE member	(1.2) OIE official delegate	(1.3) WTO member	(1.4) EU member	(1.5) Status of EU application	(1.6) Approved to export aquatic animal commodities to EU? ¹³	(1.7) If seeking approval, status of application
BiH	Yes	Dr Drago Nedić ² Director State Veterinary Office of Bosnia and Herzegovina Radiceva 2 I 71000 Sarajevo	No	No (Potential Candidate)	Stabilization and Accession Agreement (SAA) with the EU signed in 2008.	Yes	
Croatia	Yes	Dr Sanja Šeparović Director of Veterinary Directorate Ministry of Agriculture, Fisheries and Rural Development Miramarska 24 10000 Zagreb	Yes	No (Candidate Country)	Opening of the negotiation according to certain chapters, harmonization and transposition of EU legislation.	Yes	

¹ Pre-mission questionnaire was prepared and sent on October 21 2009 to Fish and Fishery Products DG SANCO F3 European Commission.

² Competent authority for reporting purposes: Sanin Tanković, Secretary General, Veterinary Office of Bosnia and Herzegovina.

The former Yugoslav Republic of Macedonia	Yes	Dr Dejan Runteovski Director Veterinary Directorate, Ministry of Agriculture, Forestry and Water Economy Bul. Treta Makedonska Brigada bb 1000 Skopje	Yes	No (Candidate Country)	Currently expecting commencement of membership negotiations. The next phase in the accession process is acquiring negotiation date for EU membership.	No	
Montenegro	Yes	Dr Ivan Popovic Director Veterinary Administration Ministry of Agriculture, Forestry and Water Management Bul. Sv. Petra Cetinjskog 9 91000 Podgorica	No	No (Potential Candidate)	Currently in a phase of fulfilling EU questionnaire for candidate country.	Yes	
Serbia	Yes	Dr Zoran Micovic Chief Veterinary Officer Ministry of Agriculture, Forestry and Water Management Veterinary Directorate Omladinskih Brigada Street 1 11000 Belgrade	No	No (Potential Candidate)	Serbia unilaterally implements Stabilization and Accession Agreement	No	Preliminary (pre-mission) questionnaire in preparation ³

³ Although Croatia, BiH and Montenegro are listed as countries approved to export aquaculture products to the EU, there are some differences. Croatia is approved for live fish and product, and is seeking approval for shellfish; BiH is approved only for fish product (inland fish); and Montenegro is approved only for live seafish, not for products.

B. Legislation relevant to aquatic animal health

Summary of results

Results of the portion of the survey questionnaire dealing with national legislation relevant to aquatic animal health (Parts 1.8–1.9) are summarized in Table 1B. All participating countries indicated the existence of some national legislation relevant to aquatic animal health.

Analysis

Among participating countries, relevant legislation is mainly contained in general veterinary regulations, some which are specific to aquaculture health (e.g. as in the case of BiH). Most countries have recently harmonized or are currently in the process of harmonizing their national legislation with the relevant EU Directives (see Annex I of blank survey form – Annex 1 of this document). Of the five participating countries, only Serbia and Montenegro indicated that national legislation is an important challenge (see Table 16B). However, a more in-depth review of relevant national legislation may be considered in conjunction with development of national aquatic animal health strategies and plans, which should be harmonized as far as possible, with national biosecurity, veterinary, aquaculture, conservation and marine resource law, and support standardized aquatic animal health procedures, as far as possible, across all participating countries.

Table 1B. Existence of national legislation relevant to aquatic animal health for participating countries (Questionnaire Parts 1.8–1.9)

Country	(1.8) Relevant legislation exists?	(1.9) If yes, name and briefly describe all legislation and where applicable, indicate which specific EU directives or decisions the legislation conforms to (e.g. EU Directive 8/2006 which replaced 91/67/EEC, 93/53/EEC and 95/70/EEC) and others listed in Annex 1
BiH	Yes	<ul style="list-style-type: none"> • Decision on the requirements for import and transit passage of live animals, products and food of animal origin, medicines, fodder and wastes to Bosnia and Herzegovina • Decision on veterinary and health conditions that must be fulfilled when putting into trade live fishes, crayfishes and shellfishes, as well as the products obtained from them (“OJ BandH”, no: 62/05) – in compliance with 91/67/EEC • Decision on veterinary – health conditions which have to be fulfilled by processing plants intended for fish and fish products, crustaceans and crustaceans products breeding, producing and placing on market (“OJ BandH”, no: 05/04) – in compliance with CD/91/493/EEC • Decision on measures for protection from infectious and parasitic diseases, their implementation and financing in 2009 (“OJ BandH,” no: 04/09) – in compliance with 93/53/EEC)

Croatia	Yes	<ul style="list-style-type: none"> • Directive 88/2006, Directive 82/894, Decision 2002/878 and Decision 2001/183 are already transposed and implemented into Croatian national legislation. • Veterinary Act (O.G. 41/07) • Ordinance (OG 42/08) /Council Directive 2006/88 EU – Animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals • Ordinance (OG 142/08) /Decision EC 2002/878 – Diagnostic methods for detection and confirmation of bonamiosis and marteliosis • Ordinance (OG 142/08) / Decision EC 2001/183 – diagnostic methods for detection and confirmation of certain fish diseases (IHS,IHN) • Ordinance (OG 31/09) / Directive 82/894/EEC) on the notification of animal diseases
The former Yugoslav Republic of Macedonia	Yes	<ul style="list-style-type: none"> • Law on Veterinary Health (Official Gazette of The former Yugoslav Republic of Macedonia No.113/07) • Law on Veterinary Public Health (OG of RM No.114/07) • Law on Animal Protection and Welfare (OG of RM No.113/07) • Law on Animal By-products (OG of RM No.113/07) • Law on Safety of Foodstuffs and Products and Materials in Contact with Foodstuffs (OG of RM No 54/2002) • Related Book of Rules and Guidelines <ul style="list-style-type: none"> - Book of Rules for the procedures and checks of the animals, products and by-products of animal origin intended for import and transit, the procedures for their notification at border inspection post and the framework of the minute for the results of the performed control (OG of RM No.129/08) - Book of Rules for the models of the veterinary health certificates for animal by-products accompanying consignments intended for import or transit into or through Republic of The former Yugoslav Republic of Macedonia (OG of RM 28/09) - Book of rules laying down methods and procedures for registration of legal entities providing import, and/or re-export as well as the model and content of documentation for import, and/or re-export (OG of RM No. 67/08) - Guideline on the list of animals, animal products and animal by-products that are subject to veterinary checks and controls by official veterinarian at border inspection post (prepared by the VD and approved by the Minister of MAFWE on 6.3.2008 No 11–3440/2) - Guideline on the list of animal feed, other products for animal nutrition and veterinary medical drugs that subject to veterinary checks and controls by official veterinarian at custom terminal (national provision, prepared by the VD and approved by the Minister of MAFWE on 1.4.2008 No 11-4900/1)
Montenegro	Yes	<ul style="list-style-type: none"> • Veterinary Law • Food Safety Law
Serbia	Yes	<ul style="list-style-type: none"> • Only general provisions regarding animal health and import/export control are stipulated in Law on Veterinary Matters (OG RS No 91/05), with the list of notifiable animal diseases of special interest (OIE) • Regulations concerning prevention and eradication of certain trout diseases

C. Trade in live aquatic animals and use of health certification

C.1 Exportations

Summary of results

Survey results relating to the export of live aquatic animals by participating countries are presented in Table 1C (Survey Questionnaire Parts 1.6–1.7). Only two countries (BiH and Croatia) indicated a limited export of live foodfishes. BiH exports both fingerlings and market-size trout and carps to neighbouring countries (Serbia and Montenegro), while Croatia exports both freshwater (carp, eel and others) and marine (tuna, seabass and seabream) fish to BiH and the European Union (total value of approximately US\$3 million). Respondents were unable to provide complete data on species/lifecycle stages, quantities and/or values of live exportations. In no case was exportation of live ornamental fishes noted.

Table 1D provides a summary of survey results relating to use and type of health certificates (HC) that are provided by exporting countries to their trading partners. BiH and Croatia both provide HCs for exported live aquatic animals at the request of importing countries. In all cases, certificates are to OIE standards, are as required by the importing country, and may include visual inspection or other standards.

Analysis

Exportation of live foodfishes by participating countries is currently quite limited. Analysis is hindered by a lack of precise data. This may indicate a lack of systematic and detailed record keeping on the part of participating countries. More detailed information on exportations and on future projections for aquaculture development is needed to fully understand trading patterns and the demands placed on CA for issuance of HC. More accurate and complete data on live exports, including information on species compositions, life history stages, numbers of animals by species, origins, health status, destinations, etc. should be systematically collected and stored in a national database in a format that is easily retrievable for use by policy planners.

To fully access international markets, participating countries will need to be able to provide HCs based on testing for pathogens as specified by importing countries to the standards given in the OIE *Aquatic Animal Health Code* and *Manual of Diagnostic Tests for Aquatic Animals*. Based on available information, BiH and Croatia appear to be able to completely fulfill the certification requirements requested by current trading partners and for currently traded commodities. Other countries may need to review and possibly upgrade diagnostics capability to achieve the high standards outlined by the OIE and required by potential trading partners such as the EU.

In the case of BiH, the current inability to access the EU market for live aquatic animals is due primarily to a lack of the required national disease status for certain diseases. BiH is collecting data in order to prove historical freedom from certain diseases, and regular monitoring programmes for infectious haematopoietic necrosis (IHN), viral haemorrhagic septicaemia (VHS), infectious pancreatic necrosis (IPN) and spring viraemia of carp (SVC) have been conducted for several years using diagnostic testing in accordance with OIE requirements.

Table 1C. Summary of exportations of live foodfishes by participating countries (Questionnaire Parts 1.10–1.11)

(1.7) If Yes, principal species exported, volumes, estimated values, destinations								
Country	(1.6) Exports aquatic animals?	Year	Species/life stage	Quantity (kg)	Value (US\$)	Destination		
BiH	Yes	2009 (1 st four months)	<i>Fingerlings</i>					
			- Trout	2 640		Serbia		
					- Carp	26 200		Serbia
					<i>Market size fish</i>			
					- Trout	29 600		Serbia
					- Carp, silver carp, catfish and grasscarp	216 605		Serbia
						25 400		Serbia
				2008	- Silver carp			
					<i>Market size fish</i>			
					- Trout	97 700		Montenegro
			- Carp	19 300		Serbia		
			- Carp, silver carp, catfish and grasscarp	289 432		Serbia		
				11 350		Serbia		
			- Silver carp					
Croatia	Yes	2008	Carp	63 300	217 160	BiH		
				6 500	31 788	Italy		
			Eel	58 975	628 716	Netherlands		
			Tuna	10 040	159 487	Spain		
			Seabass	600	30 306	BiH		
				5 151	1 076 730	Spain		
			Seabream	933	182 285	France		
				1 237	238 843	Italy		
			Freshwater fish (except trout, carp and eel)	15 945	39 757	BiH		
				48 450	125 148	Italy		
	24 723	43 459	Germany					
	203 025	260 143	Serbia					
The former Yugoslav Republic of Macedonia	No							
Montenegro	No							
Serbia	No							

Table 1D. Summary of health certification provided for exported aquatic animals (Questionnaire Parts 1.12–1.13)

Country	(1.12) Health certificate issued?	(1.13) If Yes, is health certificate (HC) issued:			Notes
		An international HC to OIE standards?	As required by importing country (non-OIE standard) ?	To other standards (visual or other)?	
BiH	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> • In accordance with Decision on veterinary certificate on health status of the animals and consignments of animal origin in internal and foreign trade, Veterinary Inspectors in charge are issuing veterinary HC for consignments of live fish or fish products. Form of the HC is prepared by the Veterinary Office of BiH in accordance with international standards and requirements of the importing country. Veterinary Office of BiH maintains a list of Veterinary Inspectors authorized to sign certificates, together with records of all issued certificates.
Croatia	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> • MAFRD-Veterinary Inspection Directorate (VID) prepares and distributes HCs. HCs are issued and signed by official veterinarian in accordance with Veterinary Law
The former Yugoslav Republic of Macedonia	NA				<ul style="list-style-type: none"> • Does not export live aquatic animals
Montenegro	NA				<ul style="list-style-type: none"> • Does not export live aquatic animals
Serbia	NA				<ul style="list-style-type: none"> • Does not export live aquatic animals

C.2 Importations

Summary of results

Survey results relating to the import of live aquatic animals by participating countries are presented in Table 1E (Survey Questionnaire Parts 1.14–1.15). All participating countries import some live aquatic animals. BiH imports trout eggs from Denmark, the United States of America and the Isle of Man (total of about 27.5 million pieces in 2008), seabass fingerlings (total of 2 250 000 pieces from Croatia and France in 2008); fingerlings of gilthead seabream (350 000 pieces from France and Italy), and larvae and fingerlings of common carp from Croatia and Serbia (fingerlings – 130 000 kg from Croatia; larvae – 5 500 000 kg and 18 900 000 pieces from Croatia and 5 000 000 pieces and 10 000 kg from Serbia; The former Yugoslav Republic of Macedonia imports live salmonids and cyprinids from Bulgaria, Greece and Serbia for both the restaurant trade and grow-out in aquaculture facilities (however, data is combined for both types of fish). Croatia imports ornamental freshwater and marine fish from a variety of sources (total value of US\$427 045 in 2008), freshwater foodfishes (trout, eel, carp and others) from BiH, Hungary and France (total value of US\$794 102); and marine foodfishes (tuna, seabass, seabream and others) from the EU, Libya, Morocco and Tunisia (total value of US\$12 823 425). Serbia indicated that some importation of live fish is occurring, but did not provide information on species or volumes.

Probably all participating countries import small numbers of freshwater ornamental fishes, however, only Croatia and The former Yugoslav Republic of Macedonia provided limited data on this aspect. As is often seen in the ornamental trade, the data for quantity of fish traded likely represents the total weight of shipments, including packing water and shipping materials.

Information on the nature of any health certificates demanded by importing countries from their trading partners is summarized in Table 1F (Summary Questionnaire Part (1.11)). All five countries indicated that importation of live aquatic animals requires some form of health certification. These generally appear to relate to statements from the veterinary authorities of exporting countries that the farm of origin is free from certain serious diseases of salmonids or cyprinids. Croatia and The former Yugoslav Republic of Macedonia note that they require import health certificates aligned with relevant EU regulations.

Table 1G summarizes information on any other risk management measures used by participating countries during importation of live aquatic animals (Summary Questionnaire Part 1.12). All five participating countries indicate some form of border checking and inspection (upon entry and/or at destination) occurs and that quarantine measures are applied.

Analysis

More detailed information on importations is needed to fully understand trading patterns and identify any “risky” practices. A review of the information that the state requires from importers may be needed so that procedures for more accurate and complete data on species compositions, life history stages, numbers of animals by species, origins, health status, destinations, etc. are available. Record keeping needs to be improved so that this information is uniformly and systematically collected and stored in a format that is easily retrievable.

Although health certification requirements for importation appear to be in line with OIE procedures and EU directives, a more detailed review of the health certification requirements and border/postborder quarantine and testing requirements and procedures is needed before firm conclusions can be drawn.

Table 1E. Summary of importations of live fishes (data for 2008) by participating countries (Questionnaire Part 1.14–1.15)

Country	(1.14) Imports aquatic animals?	(1.15) If Yes, principal species imported, volumes, estimated values, sources				
		Year	Species/stage	Quantity ¹	Value (US\$)	Source
BiH	Yes	2008	Trout eggs	1 900 000 pcs		Denmark
				5 000 000 pcs		USA
				20 750 000 pcs		Isle of Man
			Seabass fingerlings	250 000 pcs		France
				2 500 000 pcs		Croatia
			Gildhead seabream fingerlings	250 000 pcs		France
				100 000 pcs		Italy
			Carp fingerlings	130 000 kg		Serbia
				18 900 000 pcs		Croatia
			Carp larvae	5 500 000 kg		Croatia
5 000 000 pcs		Serbia				
			10 000 kg		Serbia	

¹ Reporting for BiH has not been standardized; thus, figures obtained from Border Veterinary Inspection reports are given in either pieces or kilograms; although not indicated, kilogram values for carp fingerlings and larvae probably include shipping water and packing materials.

Croatia	Yes	2008	Ornamental freshwater fish	10 736 kg	395 237	Czech Republic, Indonesia, Italy, Israel, Hungary, Germany, Singapore, Slovakia, Thailand, Sri Lanka
			Ornamental marine fish	886 kg	31 808	Indonesia, Germany, Senegal, Singapore, Sri Lanka
			Trout	20 000 kg	197 658	
			Eel	350 kg	332 211	BiH
			Carp	4 200 kg	14 466	France
				39 984 kg	125 367	BiH
				23 350 kg	104 851	Hungary
			Tuna	139 280 kg	1 798 094	Serbia
				90 000 kg	1 581 308	Italy
				135 000 kg	1 627 101	Libya
				100 000 kg	1 980 660	Morocco
			Freshwater fish (except ornamentals, trout, eel and carp)	395 kg	19 549	Tunisia Hungary
			Seabass	2 800 kg	304 981	
				6 627 kg	583 894	France
				11 650 kg	656 433	Italy
			Seabream	6 682 kg	646 271	France
				189 200 kg	2 993 897	Italy
			Seawater fish (except seabream, seabass, ornamentals and tuna)	1 140 kg	85 596	France
				35 200 kg	545 641	Italy Libya

Salmonidae and Cyprinidae						
The former Yugoslav Republic of Macedonia	Yes		Fish intended for farming	2008	4 400 kg	Bulgaria
				2008	1 968 kg	Greece
				2008	52 270 kg	Serbia
				2009 ²	1 500 kg	Bulgaria
				2009 ²	13 200 kg	Serbia
				2008	10 300 kg	Bulgaria
			Fingerlings for farming	2008	9 985 kg	Serbia
				2009 ²	2 000 kg	Bulgaria
				2009 ²	390 kg	Greece
				2009 ²	6 360 kg	Serbia
				2008	30 kg	USA
			Ornamentals	2008	7 885 kg	Singapore
				2009 ³	5 360 kg	Singapore
Montenegro	Yes		Trout, gilthead seabream (<i>Sparus auratus</i>) and seabass (<i>Dicentrarchus labrax</i>) – alive for consumption		Unknown	BiH, Italy
					No official data kept	
					No data	
Serbia ²	Yes		Larvae	Unknown	Unknown	BiH, Hungary, Norway

²To 1 August 2009.

³ Official data keeping on imports does not exist.

Table 1F. Summary of health certification required from exporting countries for aquatic animals entering participating countries (Questionnaire Part 1.16, in Part).

Country	Health certificate required?	Type of health certificate (HC) required			Notes
		International HC to OIE standards	As required by importing country (may be non-OIE standard)	As provided by exporting country	
BiH	Yes	Yes	Yes	Yes	Depending on the exporting country, Veterinary Office of BiH requires at least following: <ul style="list-style-type: none"> • That the roe originates from fish and fish farms in which there are no any notifiable infectious diseases; • That the consignment was subjected to veterinary examination prior to dispatch and showed no clinical signs of diseases that can be transmitted by that particular species to other animals; • That fish originate from farms under veterinary health control, free of notifiable infectious diseases; • That the farm of origin is free of (depending on species): That the farm of origin is free of (depending on species): <ul style="list-style-type: none"> - Viaremia vernalis cyprini - Aerocystitis cyprini - Erythrodermatitis cyprini - Septicaemia haemorrhagica salmonis - Necrosis infectiosa pancreatica salmonis - Furunculosis salmonis - Myxomiasis salmonis
Croatia	Yes	Yes	Yes	No	Import conditions are aligned with EU rules. Certificates regarding aquatic animals are aligned with those from Regulations 1250/2008 and 1251/2008.

The former Yugoslav Republic of Macedonia	Yes	Yes	No	No	AAH certificates required for import are in accordance with the appropriate EU AAH certification that originates from third countries. Certificates regarding AAH are aligned with those from Regulation 1251/2008. Model of the health certificate for ornamental fish is laid down in Annex III of the above regulation.
Montenegro	Yes	NR	NR	NR	That the farm of origin is free of (depending on species): <ul style="list-style-type: none"> - Viaremia vernalis cyprini - Aerocystitis cyprini - Erythrodermatitis cyprini - Septicaemia haemorrhagica salmonis - Necrosis infectiosa pancreatica salmonis - Furunculosis salmonis - Myxomiasis salmonis
Serbia	Yes	Yes	Yes	Yes	Depends upon agreement with exporting country; all types of international certificates could be valid if previously agreed with Serbia's CCA

Table 1G. Summary of other controls or risk management measures applied to imported aquatic animals by participating countries (Questionnaire Part 1.17)

Country	(1.17) Other controls or risk management measures applied to imported aquatic animals
BiH	<ul style="list-style-type: none"> • Veterinary inspection at border crossing, place of destination and quarantine measures
Croatia	<ul style="list-style-type: none"> • At the border, veterinary inspectors check consignment and take samples for prescribed testing. • Live animals have to be put into quarantine and checked for health status.
The former Yugoslav Republic of Macedonia	<ul style="list-style-type: none"> • Veterinary checks and controls at border inspection posts (BIPs) are performed by official veterinarians – one stop control: documentary check, identity check and physical check. • After import, live animals have to be quarantined and checked for health status.
Montenegro	<ul style="list-style-type: none"> • Veterinary inspection at border crossing, place of destination and quarantine measures
Serbia	<ul style="list-style-type: none"> • At the border, veterinary inspectors check consignment and take samples for prescribed testing. • Live animals have to be put into quarantine and checked for health status.

D. Risk analysis capacity

Summary of results

The current capacity of participating countries to undertake pathogen risk analysis is summarized in Table 1H (Summary Questionnaire Parts 1.18–1.21). Only two of the five countries (BiH and The former Yugoslav Republic of Macedonia) indicate some capacity in this area. In all cases, risk analysis for aquatic animal commodities is not linked with evaluation of other sorts of risks (ecological, genetic, environmental, etc.)

Analysis

Governments must often make decisions having far-reaching social, environmental and economic consequences based on incomplete knowledge and a high degree of uncertainty. Risk analysis is a structured process that provides a flexible framework within which the risks of adverse consequences resulting from a course of action can be evaluated in a systematic, science-based manner. The risk analysis approach permits a defensible decision to be reached on whether the risk posed by a particular action is acceptable or not, and provides the means to evaluate possible ways to reduce an unacceptable risk to one that is acceptable.

A pathogen risk analysis (termed import risk analysis or IRA when applied to international trade) analyses the risks of introducing and/or spreading exotic pathogens or strains into new geographic areas along with the international or domestic movement of aquatic animal commodities. With the adoption of the SPS Agreement in 1994, WTO member countries are required to use risk analysis as a means to justify any restrictions on international trade in live aquatic animals or their products based on risk to human, animal or plant health, including the application of sanitary measures beyond those outlined in the OIE Code. As a result, risk analysis is now an internationally accepted method for deciding whether trade in a particular commodity poses a significant risk to human, animal or plant health and, if so, what measures could be applied to reduce that risk to an acceptable level.

A key problem with conducting pathogen risk analysis is the large amount of uncertainty that is often encountered due to a general lack of basic knowledge on pathogens of aquatic animals, including their identities, life cycles, ecology, host specificity, pathogenicity, etc. Thus along with the development of risk analysis expertise, countries also need to establish appropriate supporting activities such as disease information databases, targeted research, diagnostics capability, surveillance and monitoring, etc.

There appears to be little capability or experience with aquatic pathogen risk analysis in participating countries. While two countries (BiH, The former Yugoslav Republic of Macedonia) indicated that expertise related to conducting risk analysis is present, neither cited examples of commodity-based pathogen risk analyses that have been conducted. There is thus a need to increase capacity through regional and national training programmes in pathogen risk analysis, to develop appropriate regional or national structures for conducting risk analyses for key aquatic species and, as part of regional and national strategies, to develop capacity in other areas of aquatic animal health to support risk analysis. There is also a need to coordinate pathogen risk analyses with ecological and genetic risk analyses where proposals to introduce new species for aquaculture development are received.

Table 1H . Summary of capacity to conduct risk analyses for proposed movements of live aquatic animals in participating countries (Questionnaire Parts 1.18–1.21)

Country	(1.18) Is there expertise to conduct import risk analysis (IRA) for aquatic animal pathogens?	(1.19) If Yes, details of agency(ies) having expertise and examples of IRAs undertaken	(1.20) Is pathogen RA linked with evaluation of other risks (e.g. ecological, pest, invasive alien species, genetic risks)?	(1.21) If Yes, how is this accomplished ?
BiH	Yes	Veterinary Office of BiH	No	
Croatia	No		NA	
The former Yugoslav Republic of Macedonia	Yes	MAFWE – Veterinary Directorate <ul style="list-style-type: none"> • Imports of animals, products or animal by-products may be banned, or conditions for imports amended, by decision laid down by the CVO in cases of an outbreak of a contagious animal disease or any other incident in the country of origin which may pose a risk to animal or public health, according to: <ul style="list-style-type: none"> ▪ OIE animal diseases status and updates ▪ Official journal of European Union diseases updates ▪ Risk analysis results 	No	
Montenegro	No		NA	
Serbia	No		NA	

SECTION 2. CONTROL OF DOMESTIC MOVEMENTS OF LIVE AQUATIC ANIMALS AND OTHER DOMESTIC ACTIVITIES THAT MAY SPREAD PATHOGENS

Summary of results

A summary of the status of regulations present in participating countries pertaining to activities that may prevent the domestic spread aquatic animal pathogens is given as Table 2 (Questionnaire Parts 2.1–2.4). All countries indicated the presence of capacity to regulate the domestic movement of live aquatic animals. All countries but one (Serbia) indicated capacity to regulate the disposal of waste products from processing plants. In BiH and Montenegro, regulation is done at the municipal level, while in Croatia and The former Yugoslav Republic of Macedonia, it is the responsibility of the national or state authorities.

Analysis

The ability to regulate the domestic movement of live aquatic animals can be an important tool for risk management and can be used, for example, to limit the use and distribution of new and exotic aquaculture species until their health status and the absence of any unpredicted ecological impacts is confirmed. It is also an essential component of contingency planning to restrict pathogen spread during a major disease outbreak, and is required for zoning, to help countries maintain the disease-free status of uninfected zones. For countries having significant freshwater aquatic systems or long marine coastlines, disease zoning and control may be possible and measures for domestic control of movements may be desirable. On a regional basis, it is possible that disease zoning could be applied to shared freshwater and marine ecosystems.

The unsafe disposal of aquatic animal wastes (including processing water) from seafood processing plants represents a potential source for transmission of viruses and other aquatic animal pathogens. In countries where commercial processing takes place, the governmental agencies charged with regulating processing plants should be identified and current regulations and procedures (e.g. Hazard Analysis and Critical Control Points [HACCP], better management practices [BMPs]) should be reviewed to confirm that there are adequate safeguards to ensure that wastes and waste waters are properly treated or disposed of in a manner that will prevent the release of any viable pathogens into the environment.

Table 2. Summary of status of regulations pertaining to activities that may prevent domestic spread aquatic animal pathogens by participating countries (Questionnaire Parts 2.1–2.4)

Country	(2.1) Regulations on in-country movement of aquatic organisms?	(2.2) If Yes, brief description of controls, contact details of responsible agencies, legislation providing authority for control	(2.3) Regulations on waste disposal from seafood processing plants?	(2.4) If Yes, brief description of controls, contact details of responsible agencies, legislation providing authority for control
BiH	Yes	<ul style="list-style-type: none"> In accordance with the decision on veterinary certificate on health status of the animals and consignments of animal origin in internal and foreign trade, each consignment (live animals or animal products) has to be followed by the form stating that the consignment fulfills all necessary health standards. Forms are filled by local veterinary organizations and checked by the veterinary inspectors. 	Yes	<ul style="list-style-type: none"> In accordance with the legislation, waste disposal is managed by the local public authorities (municipality authorities).
Croatia	Yes	<ul style="list-style-type: none"> Controls are done in accordance to Veterinary Law and Ordinances regarding specific area (e.g. animal health, food safety, etc.). In the control system, authorized veterinary organizations, official veterinarians and state veterinary inspectors are involved. 	Yes	<ul style="list-style-type: none"> Veterinary Law and Ordinance aligned with Regulation 1774/2002. Controls are done by official veterinarians and state veterinary inspectors.

The former Yugoslav Republic of Macedonia	Yes	<ul style="list-style-type: none"> • Enforcement of controls is carried out by the official veterinarians assigned to the Regional Veterinary Offices (RVOs), RVOs are directly subordinate to the Veterinary Directorate of MAFWE. The official veterinarian is authorized and obliged to carry out the following duties: <ul style="list-style-type: none"> - Implementation of measures for animal health protection, prevention, control and eradication of animal diseases, surveillance and monitoring of animal diseases and performing veterinary controls during keeping, production and transport of animals. - Control the compliance with the provisions concerning veterinary health in the collection centres of semen, ova and embryos, as well as in reproduction farms, animal, <i>game and fish farms</i>, bee gardens, silkworm farms, animal reserves and zoos. • The competencies of the Veterinary Directorate derive from the Law on Veterinary Health (OG of RM No 113/07); Law on Veterinary Public Health (OG of RM No. 114/07); Law on Animal Protection and Welfare (OG of RM No. 113/07). 	Yes	<ul style="list-style-type: none"> • Controls are carried out by the official veterinarians assigned to the Regional Veterinary Offices (RVOs), RVOs are directly subordinated to the Veterinary Directorate of MAFWE. • The competencies of the Veterinary Directorate derive from the Law on Veterinary Health (OG of RM No 113/07);), Law on Veterinary Public Health (OG of RM No. 114/07); Law on Animal Protection and Welfare (OG of RM No. 113/07); Law on Animal By-Products of animal origin (OG of RM No. 113/07).
---	-----	---	-----	--

Montenegro	Yes	<ul style="list-style-type: none"> • Controls are done in accordance to Veterinary Law and rule books regarding the specific area (e.g. animal health, food safety, etc.). • In accordance with the Rule book on issuing of veterinary certificate on health status of the animals in internal trade, each consignment of live animals has to be accompanied by the form stating that the consignment fulfills all necessary health standards. Forms are filled by local veterinary organizations and checked by the veterinary inspectors. 	Yes	<ul style="list-style-type: none"> • In accordance with the legislation, waste disposal is managed by the local public authorities (municipality authorities).
Serbia	Yes	<ul style="list-style-type: none"> • Regulations on Loading, Reloading and Unloading of Animals, Products, Raw Materials and Animal Waste, Transportation Vehicle Requirements, Sanitary and Technical Condition of the Consignment and Form of the Consignment Health Condition Certificate (OG SFRY N° 69/90) – general provisions regarding requirements for establishments, loading point, vehicles etc. • Veterinary Directorate, Veterinary Inspection 	No	

SECTION 3. POLICY AND PLANNING

Summary of results

A summary of the current status of policy and planning for aquatic animal health in participating countries is presented Table 3A (Survey Questionnaire Parts 3.1–3.2) and Table 3B (Survey Questionnaire Parts 3.3–3.7). Only two countries (BiH and Serbia) indicated that a specific agency was identified as responsible for national aquatic animal health matters. Two countries (Croatia and Montenegro) have aquatic animal health policy officially expressed in the form of national legislation, while another country (BiH) has a National Aquatic Animal Health Strategy (prepared under FAO project TCP/BiH/3101), but which is not yet officially adopted as a national policy document. With regard to the involvement of subnational entities in setting national aquatic animal health policy, only BiH indicated that this occurred.

Table 3C presents summary information on estimates of the effectiveness of current policy (Survey Questionnaire Part 3.8 (a-c)). Croatia indicated that current policy and planning was thought to be adequate in preventing the entry and spread of pathogens, adequate for the domestic control of serious diseases, and effectively implemented, while BiH indicated that planning for preventing the entry and spread of pathogens and for the domestic control of serious diseases were both adequate, but that implementation was inadequate. Three countries (The former Yugoslav Republic of Macedonia, Montenegro and Serbia) indicated that current policy and planning are inadequate for preventing the entry and spread of pathogens, inadequate for the domestic control of serious diseases, and are not effectively implemented.

Table 3D summarizes for each country, the specific areas addressed by national policy (Survey Questionnaire Part 3.9). BiH and Croatia indicated that all areas were addressed by policy, while The former Yugoslav Republic of Macedonia, Montenegro and Serbia felt that the technical areas of disease diagnostics and farm-level treatment and prevention of diseases were adequately addressed (as well as, in the case of Montenegro, international treaties, memberships and linkages) but that other areas such as risk analysis; emergency preparedness; infrastructure; financial requirements and planning; international treaties, memberships and linkages; and communication (interagency, stakeholder) were not.

Table 3E summarizes responses concerning the current priorities for national aquatic animal health policy in participating countries (Survey Questionnaire Part 3.10). For BiH and Montenegro, emphasis is on harmonizing legislation with the EU, implementing risk analysis, improving diagnostic capabilities, establishing national disease surveillance programmes and improving communication with stakeholders (Montenegro also listed capacity building in inspection and good manufacturing practices, and categorization of aquaculture farms). Croatia's priorities include classifying aquaculture facilities according to health status, disease zoning, implementing monitoring and surveillance programmes and developing contingency plans for aquatic animal diseases. Priorities for The former Yugoslav Republic of Macedonia include farm classification, monitoring and surveillance, contingency planning, implementing risk analysis and improving diagnostics. Serbia seeks to build aquatic animal health capacity, develop or improve relevant legislation and increase training opportunities.

Analysis

In all countries, the agencies responsible for ensuring aquatic animal health are the veterinary services (national, state or entity, and municipal or local).

Development of a national strategy on aquatic animal health within the broader framework of biosecurity policies or aquaculture development plans is being promoted by FAO. A national strategy contains a comprehensive framework that will allow countries to protect aquatic animal health, ensure healthy aquatic production, comply with international obligations, etc. A national strategy contains many of the essential elements for a successful aquatic animal health protection programme. These include national coordination and priority setting, legislation and policy, pathogen list, institutional

resources, diagnostics, disease zoning, surveillance and reporting, health certification and quarantine, contingency planning, pathogen risk analysis, capacity building, communication, farmer/private sector engagement, financial resources, surveillance and monitoring, and evaluation and regional and international cooperation.

The development of formal strategies, policies and plans for aquatic animal health in participating countries (as has been done in BiH) should be a priority. For most countries, formulation of a clear national policy that states a vision for national aquatic animal health and outlines the means of achieving it would be desirable. The incorporation of aquatic animal health issues related to international and domestic disease control and prevention into broader programmes of national biosecurity that include components for terrestrial animals and plants also has many advantages, including development of standardized procedures and methods across all commodities and cost effectiveness with regard to shared expertise and facilities.

The current priorities for national aquatic animal health as identified by the survey indicate a shared need to develop effective planning and associated technical capacity. Common themes include improving or establishing monitoring and surveillance programmes, registering and classifying (by disease status) aquaculture production facilities, improving capacity for risk analysis and disease diagnosis, contingency planning and improving and harmonizing legislation. All of these activities would be done so as to improve conformance with the relevant EU directives.

Table 3A. Summary of status of policy and planning for aquatic animal health (AAH) in participating countries (Survey Questions 3.1–3.2)

Country	(3.1) National responsible agency designated?	(3.2) If Yes, indicate:	
		Name of responsible agency/department	Responsibilities
BiH ¹	Yes	<p>The Veterinary Office of BiH under the Ministry of Foreign Trade and Economic Relations was established in 2001 as a Central Competent Authority in Veterinary Service at the State level.</p> <p>Entity ministries of agriculture, water management and forestry including Brčko District (regional level)</p> <p>Veterinary Inspectorates are organized at the entity level.</p> <p><u>Veterinary Organizations</u> (private and public-sector practitioners)</p>	<p>Competencies, duties and powers of the Veterinary Office of BiH are given by the Veterinary Law. The office is in charge of: (a) issuance of legislation, (b) issuance of veterinary HCs and import licenses, (c) border veterinary controls, (d) drafting of disease surveillance programmes, (e) drafting of residue monitoring plans, (f) operation of diagnostic laboratories and (g) all other issues related to international traffic of live animals and products of animal origin, and the veterinary health conditions in the establishments. The Veterinary Inspection Department includes the Border Veterinary Inspection and is an integral part of the VO BiH, which is also in charge of animal identification and movement controls through the Agency for Animal Identification and Movement Control located in Banja Luka.</p> <p>In charge of the implementation of legislation issued at the state level. They have the obligation to implement disease control and food safety programmes. Furthermore, they have a right to issue sub-law documents that are not covered by the state legislation.</p> <p>Implementation of inspection related to enforcement of health surveillance, food safety, application of standards in facilities and movement of live animals and products of animal origin.</p> <p>Implementing of primary health care, including vaccination and treatment of animals. Together with the veterinary inspectors, they present the first line in disease control.</p>

¹ After signing of the Dayton Peace Agreement, BiH was divided into three administrative units: the Federation of BiH, the Republic of Srpska and Brčko District of BiH (referred to as the Entities).

Croatia	No		
The former Yugoslav Republic of Macedonia	No		
Montenegro	No		
Serbia	Yes	Veterinary Directorate of MAFWM	Responsible for all issues concerning fish health and safety of fishery products

Table 3B. Summary of status of policy and planning for aquatic animal health (AAH) in participating countries (Survey Questions 3.3–3.7)

Country	(3.3) Official policy expressed by national AAH plan, strategy, legislation or other document?	(3.4) If Yes, citation for relevant document	(3.5) If No, how are issues impacting national AAH currently handled?	(3.6) Subnational entities play role in setting national AAH policy?	(3.7) If Yes, Description of roles
BiH	Yes ¹	National Aquatic Animal Health Strategy for Bosnia and Herzegovina, developed under FAO TCP 3101/ BiH Project Strengthening Aquaculture Health Management in Bosnia and Herzegovina		Yes	All stakeholders are involved in the drafting of the legal documents and were part of the TCP/3101/BiH Project through which the strategy was drafted
Croatia	Yes	Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in 2009 (Official Gazette 151/08)		No	

¹ An agreed upon National Aquatic Animal Health Strategy for BiH has been developed through stakeholder consultation and is used for guiding policy

The former Yugoslav Republic of Macedonia	No	<ul style="list-style-type: none"> • According to the Law on Veterinary Health (OG RM No 113/07), each year the MAFWE lays down the Annual Order for protection of animal health for implementation of measures of animals from certain contagious diseases as well as the schedule for implementing those measures in the following year. • The Government of The former Yugoslav Republic of Macedonia promulgates multi-annual programmes for eradication of certain diseases that are of great national significance, for a period of 5 years. 	No
Montenegro	Yes	<ul style="list-style-type: none"> • Operational Programme on animal health protection for the year 2009 (“OJ MN” No 5/09) 	No
Serbia	No	<ul style="list-style-type: none"> • Regulation on list of extremely dangerous disease of animals and list of contagious diseases compulsory notifiable and mode for notification and withdrawal of notification (OG RS No. 49/06) • Programme of Measures for Animal Health Protection in the Republic of Serbia for 2009 (OG RS No. 18/09) 	No

Table 3C. Effectiveness of current policy and planning for aquatic animal health (AAH) in participating countries (Survey Questions 3.8a-c)

Country	Adequate for preventing entry and spread of pathogens?	Adequate for domestic control of serious diseases?	Effectively implemented?
BiH	Yes	Yes	No
Croatia	Yes	Yes	Yes
The former Yugoslav Republic of Macedonia	No	No	No
Montenegro	No	No	No
Serbia	No	No	No

Table 3D. Areas addressed in national policy by participating countries (Survey Questions 3.9) (+ = addressed, – = not addressed, NA = not applicable due to absence of policy)

Area addressed in policy	BiH	Croatia	The former Yugoslav Republic of Macedonia	Montenegro	Serbia
National diagnostic services	+	+	+	+	+
Risk analysis	+	+	-	-	-
Farm-level treatment/prevention	+	+	+	+	+
Emerg. preparedness and disease control	+	+	-	-	-
Manpower requirements	+	+	-	-	-
Infrastructural requirements	+	+	-	-	-
Financial requirements and planning	+	+	-	-	-
Intern. treaties, memberships and linkages	+	+	-	+	-
Communication (interagency, stakeholder)	+	+	-	-	-

Table 3E. Current priorities with regard to national aquatic animal health policy in participating countries (Survey Questionnaire Part 3.10).

Country	Current national priorities
BiH	<ul style="list-style-type: none"> (i) To harmonize and review existing legislation in accordance with EU requirements (ii) To incorporate a science-based, consultative and transparent pathogen risk analysis process in the development and implementation of the state and entity policies, mechanisms and procedures for dealing with import and export of live aquatic animals and their products (iii) To improve diagnostic capacity (iv) To establish nationally uniform and scientifically based active surveillance programmes for priority aquatic animal diseases that will include standardized laboratory procedures, defined rules for sample collection, geographical zoning of the country and all other components of a surveillance system as recommended/required by international authorities and required by trading partners (v) To improve mutual communication between all stakeholders
Croatia	<ul style="list-style-type: none"> (i) To categorize aquaculture production facilities according to health status (ii) To zone areas based on health status (iii) To develop monitoring and surveillance programmes for aquatic animal diseases in accordance with Directive 88/2006 (iv) To develop contingency plans for aquatic animal diseases
The former Yugoslav Republic of Macedonia	<ul style="list-style-type: none"> (i) To categorize aquaculture production facilities according to health status (ii) To develop contingency plans for aquatic animal diseases (iii) To incorporate a science-based, consultative and transparent pathogen risk analysis process in the development and implementation of national policies (iv) To develop contingency plans for aquatic animal diseases (v) To improve diagnostic capacity (vi) To establish nationally uniform and scientifically based active surveillance programmes for priority aquatic animal diseases in accordance with Directive 88/2006 that will include standardized laboratory procedures, defined rules for sample collection, geographical zoning of the country and all other components of a surveillance system as recommended/required by international authorities and required by trading partners
Montenegro	<ul style="list-style-type: none"> (i) To harmonize and review existing legislation in accordance with EU requirements (ii) Capacity building (diagnostics, inspection, good manufacturing practices) (iii) To incorporate risk analysis into the development and implementation of the policies, mechanisms and procedures for dealing with import and export of live aquatic animals and their products (iv) To establish nationally surveillance programmes for priority aquatic animal diseases that will include standardized laboratory procedures, defined rules for sample collection, zoning of the areas regarding health status and all other components of a surveillance system as recommended/required by international authorities and required by trading partners (v) Categorizations of aquaculture farms according to health status (vi) To improve mutual communication between all stakeholders
Serbia	<ul style="list-style-type: none"> (i) Capacity building (ii) Legislation

SECTION 4. LEGISLATION

Summary of results

Development of essential enabling legislation is a key component of a national aquatic animal health strategy. Table 4 summarizes the status of national legislation dealing with aquatic animal health policy for participating countries (Survey Questionnaire Parts 4.1–4.3). All countries have legislation supporting aquatic animal health policy. Such support is typically incorporated into general veterinary laws and regulations. Four participating countries (BiH, Croatia, The former Yugoslav Republic of Macedonia and Serbia) indicated that some separate laws or regulations specific to aquatic animal health exist. Four countries (BiH, The former Yugoslav Republic of Macedonia, Montenegro and Serbia) indicated that some of their current legislation is in need of major review or revision.

Analysis

Participating countries may need to conduct a review of the effectiveness of existing legislation as part of a long-term policy and planning exercise. National legislation should be reviewed to ensure that the legal mechanisms are in place to support aquatic animal health activities and to ensure harmonization with relevant EU directives. The FAO Legal Office may provide FAO Member Countries with assistance in the review and revision of national legislation related to fisheries, aquaculture and aquatic animal health.

Table 4A. Status of legislation dealing with aquatic animal health in participating countries (Survey Questionnaire Parts 4.1–4.3)

Country	(4.1) Specific legislation exists?	(4.2) If Yes,		(4.3) If Yes, existing legislation needs major review or revision?
		By separate act or regulation?	As part of broader legislation or regulation?	
BiH	Yes	Yes	Yes	Yes ¹
Croatia	Yes	Yes	Yes	No
The former Yugoslav Republic of Macedonia	Yes	Yes	Yes	Yes
Montenegro	Yes	No	Yes	Yes
Serbia	Yes	Yes	Yes	Yes

¹Certain legal acts require revision.

Table 4B. Specific legislation dealing with aquatic animal health (Survey Questionnaire Part 4.2)

Country	Legislation
BiH	<ul style="list-style-type: none"> • Veterinary Law of Bosnia and Herzegovina (“OJ BandH”, no, 34/02) • Decision on infectious diseases (“OJ BandH”, No.44/03) • Decision on veterinary and health conditions that must be fulfilled when putting into trade live fishes, crayfishes and shellfishes, as well as the products obtained from them (“OJ BandH”, No. 62/05) • Decision on measures for protection from infectious and parasitic diseases, their implementation and financing in 2009 (“OJ BandH,” No. 04/09)
Croatia	<ul style="list-style-type: none"> • Ordinance on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals (OG 42/2008) – aligned with Directive 88/2006 • Ordinance laying down the sampling plans and diagnostic methods for the detection and confirmation of certain fish diseases (OG 142/08) – aligned with Decision 2002/878 • Ordinance establishing the sampling plans and diagnostic methods for the detection and confirmation of the presence of the <i>mollusc</i> diseases Bonamiosis (<i>Bonamia ostreae</i>) and Marteiliosis (<i>Marteilia refringens</i>) (OG 142/08) – aligned with Decision 2001/183
The former Yugoslav Republic of Macedonia	<ul style="list-style-type: none"> • Law on Veterinary Health (OG RM No 113/07) • Law on Veterinary Public Health (“Official Gazette of RM” No. 114/07) • Law on Animal Protection and Welfare (“Official Gazette of RM” No. 113/07) • Annual Order for protection of animal health for implementation of measures of animals from certain contagious diseases as well as the schedule for implementing those measures in the following year • Multi-annual programmes for eradication of certain diseases
Montenegro	<ul style="list-style-type: none"> • Veterinary Law
Serbia	<ul style="list-style-type: none"> • Law on Veterinary Matters (OG RS No 91/05) • Regulation on list of extremely dangerous disease of animals and list of contagious diseases compulsory notifiable and mode for notification and withdrawal of notification (OG RS No. 49/06) • Programme of Measures for Animal Health Protection in the Republic of Serbia for 2009 (OG RS No. 18/09)

SECTION 5. DISEASE SURVEILLANCE/MONITORING

Summary of results

The current status of surveillance and monitoring programmes for plant and animal diseases in participating countries and the existence of aquatic animal health information systems are summarized in Tables 5A and 5B, respectively (Survey Questionnaire Parts 5.1–5.3 and Part 5.4). All countries indicate that some form of official surveillance or monitoring programme exists. Most common are official programmes for surveillance and monitoring of diseases of terrestrial animals (all countries), while some form of surveillance and monitoring programme for aquatic animal diseases is indicated to be present in all countries but Serbia (where is expected to be initiated in the near future).

While all countries having aquatic animal surveillance programmes collect and analyze this data, it is unclear from survey responses to what extent information systems for storing, handling and analyzing data have been developed.

Analysis

Disease surveillance is a fundamental component of any official aquatic animal health protection programme. Surveillance and monitoring programmes for aquatic animal diseases are essential to detection and rapid emergency response to serious disease outbreaks and form the basis for early warning of emerging disease outbreaks. They are also increasingly demanded by trading partners to support statements of national disease status and are the basis for disease zonation. Surveillance also provides the building blocks of information necessary to have an accurate picture of the distribution and occurrence of diseases relevant to disease control and international movement of aquatic animals and their products.

There appears to be a need to establish surveillance and monitoring programmes for countries where these are lacking (Serbia), and improve and expand these programmes where they are already established (all other countries). Surveillance can be passive (reactive and general in nature) or active (proactive and targeted). In both cases there must be adequate reporting mechanisms so that suspected cases of serious pathogens are quickly brought to the attention of the lead agency. Surveillance and monitoring efforts must be supported by adequate diagnostics capability (including appropriately trained expertise, suitably equipped laboratory and rapid-response field diagnostics, and standardized field and laboratory methods), information system management (i.e. a system to record, collate and analyze data and to report findings), legal support structures, transport and communication networks and linked to national and international (OIE) disease reporting systems (e.g. pathogen list or list of diseases of concern, disease notification and reporting procedures). Current surveillance and monitoring programmes for some countries may not meet OIE standards for recognition of disease-free status.

Establishing a cooperative regional disease surveillance programme for key diseases of cultured aquatic animals (OIE listed diseases) should be considered, as well as harmonized procedures for data collection, storage and analysis.

Table 5A. Current status of surveillance and monitoring programmes for plant and animal diseases in participating countries (Survey Questionnaire Parts 5.1–5.3)

Country	(5.1) Official surveillance or monitoring programme exists?	(5.2) Areas in which programmes exist			(5.3) Brief description of programmes for aquatic animal diseases and name and contact details for responsible agency(ies)
		Plant s	Terrestrial animals	Aquatic animals	
BiH	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> • Veterinary Office of BiH in collaboration with the entity competent authorities and Center for Fish Diseases, Faculty of Veterinary Medicine in Sarajevo. • Veterinary Office of BiH issues an annual monitoring programme for viral fish diseases (VHS, IHN, SVC) consisting of laboratory and clinical inspections.
Croatia	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> • Veterinary Directorate develops an annual programme for surveillance of notifiable diseases with significant importance for national aquaculture: VHSV, IHNV, SVCV, KHV, VER of fish, as well as marteiliosis and Bonamiosis in oysters and mussels.
The former Yugoslav Republic of Macedonia	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> • MAFWE – Veterinary Directorate through the Faculty of Veterinary Medicine in Skopje, under the Annual Programme for Health Protection, has monitoring programmes for SVC, VHS IPN, IHN and reinibacteriosis.
Montenegro	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> • Veterinary Administration in cooperation with the Diagnostic Veterinary Laboratory performs monitoring for aquatic diseases in accordance with Operational Programme on animal health protection for the year 2009, but only for parasitic and bacterial diseases

Serbia	Yes	No	Yes	No	<ul style="list-style-type: none">• Within the annually issued Programme of Measures for Animal Health Protection in the Republic of Serbia (the last being for 2009 (OG RS No. 18/09)), permanent veterinary surveillance of fish farms and health status of fish is predicted. Veterinary Directorate is CA. Testing is mostly performed by the Veterinary Scientific Institute Belgrade as referent laboratory for fish diseases.
--------	-----	----	-----	----	--

Table 5B. Existence of aquatic animal health (AAH) information system (for storing, retrieval and analysis of disease diagnostics and surveillance data/information) (Survey Questionnaire Part 5.4)

Country	AAH information system exists?¹	If Yes, responsible institution and facilities
BiH	Yes	<ul style="list-style-type: none"> Data concerning monitoring programmes and fish farms are collected at the Veterinary Office of BiH.
Croatia	Yes	<ul style="list-style-type: none"> Analysis of data gathered from laboratory testing is done by the Croatian Veterinary Institute Surveillance data are analyzed in the Veterinary Directorate, Animal Health Sector
The former Yugoslav Republic of Macedonia	Yes	<ul style="list-style-type: none"> Analysis of data gathered from laboratory testing is done by Faculty of Veterinary Medicine in Skopje. Surveillance data are analysed in the Veterinary Directorate.
Montenegro	Yes	<ul style="list-style-type: none"> Analysis of data gathered from laboratory testing is done by Diagnostic Veterinary Laboratory. Surveillance data are collected in the Veterinary Administration, Animal Health Sector.
Serbia	No	

¹Both BiH and The former Yugoslav Republic of Macedonia indicated that surveillance and monitoring must be improved.

SECTION 6. DISEASE DIAGNOSTICS

Summary of results

A summary of disease diagnostics capability in participating countries is presented in Tables 6A–6B. Table 6A indicates the ability to diagnosis those diseases listed by the OIE (Survey Questionnaire Parts 6.1–6.2). According to the survey responses, no country has the capability to diagnosis all OIE-listed diseases, BiH is able to diagnose some diseases in all categories (molluscan, crustacean and finfish diseases), Croatia can diagnose some crustacean diseases and all molluscan and finfish diseases, The former Yugoslav Republic of Macedonia can diagnose some finfish diseases, Montenegro can diagnose some molluscan and finfish diseases, and Serbia can diagnose some molluscan and crustacean diseases and all finfish diseases.

Table 6B summarizes the status of diagnostic laboratories in participating countries, indicating whether they are officially designated national laboratories, laboratories accredited as international or national reference centres, or other public or private-sector laboratories (Summary Questionnaire Parts 6.2–6.8). Three countries (BiH, Croatia and The former Yugoslav Republic of Macedonia) indicated that national laboratories responsible for aquatic animal health have been designated. Only one country (Serbia) indicated the presence of an accredited laboratory (nationally accredited by the Accreditation Board of Serbia for microbiological analyses of animal specimens) and four countries (BiH, Croatia, Montenegro and Serbia) indicated the existence of some diagnostic capability in other public or private-sector laboratories.

Table 6C summarizes the status of national pathogen lists for participating countries (Survey Questionnaire Parts 6.9–6.10). All countries except Montenegro noted the existence of a national pathogen list.

Analysis

Disease diagnostics plays two significant roles in health management and disease control. The first role of diagnostics is to ensure that stocks of aquatic animals that are intended to be moved from one area or country to another are not carrying infection by specific pathogens at subclinical levels and is accomplished through screening of healthy animals. The second equally important role of diagnostics is to determine the cause of unfavourable health or other abnormalities in order to recommend measures appropriate to a particular situation. Disease diagnostics is also an important supporting component of surveillance and monitoring programmes, contingency planning and emergency response.

The capacity to provide rapid, accurate diagnosis of aquatic animal diseases is an important part of a national aquatic animal health plan. Issuance of international health certificates based on the demonstrated ability to diagnose diseases using the standards and diagnostics tests specified by the OIE Code and Manual for OIE-listed molluscan, crustacean and finfish diseases is increasingly required by importing countries.

In general, participating countries have access to well-equipped veterinary laboratories (either directly via national laboratories or by agreement with the veterinary faculties of local universities). These laboratories are generally able to diagnose the limited number of OIE-listed diseases that are of concern to national aquaculture (e.g. listed diseases of salmonids and cyprinids). In the case where specific capacity is lacking, some laboratories are able to access expertise at international reference laboratories, although the costs of such services may be prohibitive. There is no regional aquatic animal health laboratory and none of the existing national laboratories is an OIE reference center for aquatic animal disease diagnosis.

National pathogen lists should include only those diseases that meet a stringent set of criteria (see FAO/NACA, 2000).¹ These are:

- (i) Presence or absence of the disease or pathogen in the importing country – The disease or pathogen should be:
- exotic to the entire country, or
 - occurring in parts of the country, but there are zones that are officially recognized as free and that need to be protected, or
 - occurring in parts of the country, and the country is running a control programme to minimize spread of the disease and/or to eradicate it.
- (ii) Pathogenicity – The disease or pathogen has a significant adverse affect on host health.
- (iii) Infectious etiology – The disease is caused by an infectious agent that is transmissible horizontally and/or vertically, as well as directly or indirectly (via carriers or intermediate hosts existing in the receiving waters).
- (iv) Adverse socio-economic, public health or ecological impacts – The disease or pathogen is known or likely to cause significant adverse socio-economic, public health or ecological impacts.

Importantly, a pathogen should not be listed if it:

- occurs widely within the region with no infectious mortality or
- has no socio-economic impact, or
- is controlled through improved husbandry handling (nonchemotherapeutic intervention).

The results of the survey show that the national pathogen lists of participating countries are generally based on the OIE disease list and include only those OIE-listed diseases that are relevant to the national and regional situation.

There is a clear need to improve the national disease diagnostics capability for specific diseases in some countries (Montenegro, for example, needs capacity to diagnose OIE-listed viral diseases of salmonids and marine cage fish, and for bonamiosis and martielliosis of molluscs).

Table 6A. Summary of ability to diagnose OIE-listed diseases in participating countries (Survey Questionnaire Parts 6.1–6.2)

Country	(6.1) Adequate capacity to diagnose OIE-listed diseases?	(6.2) If Yes, capacity to diagnosis OIE-Listed		
		Molluscan diseases	Crustacean diseases	Finfish diseases
BiH	Yes	Yes (some)	Yes (some)	Yes (some)
Croatia	Yes	Yes (all)	Yes (some)	Yes (all)
The former Yugoslav Republic of Macedonia	Yes	No	No	Yes (some)
Montenegro	Yes	Yes (some)	NR	Yes (some)
Serbia	Yes	Yes (some)	Yes (some)	Yes (all)

¹ FAO/NACA. 2000. *Asia regional technical guidelines on health management for the responsible movement of live aquatic animals and the Beijing consensus and implementation strategy*. FAO Fisheries Technical Paper No. 402. Rome, FAO. 53 pp.

Table 6B. Summary of diagnostic capacity for aquatic animal diseases in participating countries (Survey Questionnaire Parts 6.3–6.8)

Country	(6.3) National laboratory officially designated?	(6.4) If Yes, contact information	(6.5) Laboratories accredited as international or national reference centres?	(6.6) If Yes, laboratory, accrediting body and type of accreditation	(6.7) Other public or private sector laboratories exist?	(6.8) If Yes, brief description of services and contact information
BiH	Yes	Faculty of Veterinary Medicine in Sarajevo, Center for Fish Diseases, Zmaja od Bosne 90 71000 Sarajevo	No (pending)	Center for Fish Diseases is appointed as National Reference Laboratory for viral fish diseases. Laboratory in process of accreditation by Institute for Accreditation of BiH	Yes	<ul style="list-style-type: none"> • The Faculty of Veterinary Medicine in Sarajevo provides services in parasitology, histopathology, general bacteriology/mycology, general virology, tissue culture, molecular diagnostics, immunoassay and water quality analysis. Other authorized government diagnostics laboratories are: Veterinary Institute "Vaso Butozan" Banja Luka,; Veterinary Institute "Vaso Butozan "Bijeljina; Veterinary Institute Tuzla; Veterinary Institute Bihać; Veterinary Institute Mostar; Veterinary Institute Zenica; Veterinary Institute "Teolab", Bijeljina; and Veterinary Institute "Slaven" d.o.o. Banja Luka. • Government and private sector have access to all other laboratories within the country, and to CRL Arhus, Denmark, and FLI Riems, Germany, for those analyses that cannot be performed within the country.

Croatia	Yes	Croatian Veterinary Institute Zagreb, Laboratory for Fish Pathology, Savska cesta 143, Zagreb	No (pending)	NRL for aquatic animal health has been organized and acting according to HRN EN ISO/IEC 17025; expecting audit in October 2009. Accreditation body is Croatian Accreditation Agency.	Yes	<ul style="list-style-type: none"> • Parasitology: Veterinary University, CVI Zagreb, CVI branch Split, CVI branch Rijeka • Histopathology: CVI Zagreb, • General bacteriology/ Mycology: Veterinary University, CVI Zagreb, CVI branch Split, CVI branch Rijeka • General virology: CVI Zagreb • Tissue culture: CVI Zagreb • Molecular diagnostics: CVI Zagreb • Water quality analysis: Croatian Public Health Institute
The former Yugoslav Republic of Macedonia	Yes	Prof. Dr. Miso Hristovski Dean and Head of the Department for Biology and Pathology of Fish, Honeybees and Wildlife University "Ss. Cyril and Methodius" Skopje Faculty of Veterinary Medicine Lazar Pop-Trajkov 5-7, 1000 Skopje Tel.: +389 2 3240 728 Fax: +389 2 3114 619 Mob.: +389 70 244 040 +389 75 244 040	No		No	

Montenegro	No		No		Yes	<ul style="list-style-type: none"> • Diagnostic Veterinary Laboratory has capability in histopathology, parasitology, general bacteriology/mycology, molecular diagnostics and immunoassay Dr. Dejan Laušević Director Diagnostic Veterinary Laboratory Bulevar Džordža Vašingtona bb p. fah 43, 81000, Podgorica Tel.: +382 20 269 407, 269 405, 269 405 Fax: +382 20 269 404 • Water quality analysis is available at the Hydrometeorological Insitute
Serbia	Yes	Scientific Veterinary Institute, Belgrade, Department for Fish Diseases	Yes	Scientific Veterinary Institute, Belgrade, Department for Fish Diseases accredited by the Accreditation Board of Serbia for microbiological analyses of animal specimens	Yes	<ul style="list-style-type: none"> • Scientific Veterinary Institute, Belgrade, Department for Fish Diseases • Dr.sc. Svetlana Jeremić, Mr.sc. Vladimir Radosavljević, Vojvode Toze 14, Belgrade, +381112851096, +381112850640 Cability includes: parasitology, histopathology, general bacteriology/mycology, general virology, tissue culture, molecular diagnostics, immunoassay and immunofluorescence

Table 6C. Summary of status of national pathogen list for participating countries (Survey Questionnaire Parts 6.9– 6.10)

Country	(6.9) National pathogen list exists?	(6.10) If Yes, criteria for listing pathogens/diseases listed
BiH Croatia	Yes Yes	OIE and EU-listed diseases Ordinance laying down the rules for disease notification (OG 31/09) contains the list of diseases that are compulsorily notifiable to competent authority. OIE standards are used regarding inclusion of disease on the list.
The former Yugoslav Republic of Macedonia	Yes	List of diseases that are compulsorily notifiable to competent authority according to the OIE's <i>Aquatic Animal Health Code and</i> according to the: <ul style="list-style-type: none"> - Council Directive 82/894/EEC of 21 December 1982 on the notification of animal diseases within the Community; - 2008/755/EC: Commission Decision of 24 September 2008 amending Decision 2005/176/EC laying down the codified form and the codes for the notification of animal diseases pursuant to Council Directive 82/894/EEC; - Council Directive 2006/88/EC of 24 October 2006 on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals
Montenegro Serbia	No Yes	The following diseases are an integral part of the Law on Veterinary Matters: <ul style="list-style-type: none"> - Spring viraemia of carp - Viral haemorrhagic septicaemia - Infectious haematopoietic necrosis - Epizootic haematopoietic necrosis - Oncorhynchus masou virus disease - Viral encephalopathy and retinopathy - Gyrodactylus salaris - Enteric septicaemia of catfish - Infectious pancreatic necrosis - Bacterial kidney disease (renibacteriosis) - White sturgeon iridoviral disease - Red sea bream iridoviral disease - Infectious salmon anemia

SECTION 7. EMERGENCY PREPAREDNESS/CONTINGENCY PLANNING

Summary of results

A summary of the current status of emergency preparedness and contingency planning for outbreaks of aquatic animal disease in participating countries is presented in Table 7 (Survey Questionnaire Parts 7.1–7.3). No country indicated that contingency planning exists for aquatic animal disease outbreaks, while all countries indicated that an emergency response plan for one or more terrestrial animal diseases has been prepared.

Analysis

Emergency preparedness is the ability to respond effectively (via early detection) and in a timely fashion (rapid response) to disease emergencies (e.g. disease outbreaks, mass mortalities). The capability to deal with emergency diseases requires a great deal of planning and coordination (including establishing operational, financial and legislative mechanisms) and making available required resources (i.e. skilled personnel and essential equipment).

As long as there is importation of live aquatic animals, there exists the possibility of a serious disease outbreak due to an exotic pathogen or strain. Risk analysis and risk mitigation measures help to reduce the likelihood of a serious disease event occurring, but even under the best circumstances, pathogens will occasionally escape detection, breach national barriers, become established, spread and cause major losses. The extent to which losses occur often depends of the quickness of detection (which depends on the effectiveness of disease surveillance, diagnostics and reporting programmes) and the rapidity and effectiveness with which governments recognize and react to the first reports of serious disease. As quick and effective reaction is largely dependent upon contingency planning, Participating countries need to develop such plans for key cultured species and diseases.

Table 7. Current status of emergency preparedness/contingency planning for outbreaks of aquatic animal disease in participating countries (Survey Questionnaire parts 7.1–7.3)

Country	(7.1) Contingency or emergency response plans exist?	(7.2) If Yes, details of plan(s)	(7.3) If No, brief description of any emergency response plans for terrestrial animal diseases, terrestrial plant pests or invasive pest species, including responsible agency/ies and supporting legislation
BiH	No		<p>Avian Influenza Contingency Plan is developed by the Veterinary Office of BiH in cooperation with the entity competent authorities and FAO. Plan is developed on the basis of EU/OIE/FAO/WHO recommendations.</p> <p>Besides agencies listed in section 3, point 3.2., Plan anticipates engagement of the police, human public health authorities and crisis centres.</p>
Croatia	No		<p>Contingency plans are developed for CSF, BT, AI and BSE. MAFRD, Veterinary Directorate develops contingency plans for diseases that are most important to the country. Rules to be included into contingency plans are prescribed in the Ordinances regarding specific diseases. Also OIE recommendations are used while preparing contingency plans.</p>

The former Yugoslav Republic of Macedonia	No	<p>The Law on Veterinary Health defines the activities and obligations related to the control and eradication of harmful contagious diseases. A general contingency plan was adopted in 2007. It defines the legal requirements, responsibilities, organizational structure, chain of command, information flow, resources (human, financial and material), responsibilities of national disease control centre, local disease control centres, expert groups, training and public awareness.</p> <p>Contingency plans for Avian Influenza (adopted and published in OG 82/2007); Bluetongue (adopted and published in OG 84/2007) and Foot and Mouth Disease have been developed and adopted by the government in 2008. As regards Classical Swine Fever, a regional and national project funded by European IPA and TAIEX funds is foreseen to be implemented in 2009. One of the objectives is to define a contingency and eradication plan for the disease.</p> <p>Programmes for eradication of Brucellosis and Tuberculosis in cattle are adopted in OG 22/2007 and a programme for eradication of Brucellosis in sheep and goats is adopted and published in OG 59/2008.</p>
Montenegro Serbia	No No	Contingency plan exists only for Avian Influenza. Responsible agency is the Veterinary Directorate

SECTION 8. EXTENSION SERVICES

Summary of results

A summary of the current status of extension services that support the prevention of aquatic animal diseases in aquaculture facilities in participating countries is presented in Table 8 (Survey Questionnaire Parts 8.1–8.3). According to respondents, extension services exist in all countries but Montenegro and Serbia.

Analysis

Individual countries should consider the need for extension services to the aquaculture industry and the best methods of delivering these services. Often the aquaculture sector can deliver its own extension services; however, in some cases, government extension services, either by training of veterinary extension officers in the basics of aquatic animal health, or through specific health-related extension and diagnostic services can be considered. Extension officers can also serve to monitor basic health conditions in aquaculture facilities and provide a basis for passive disease surveillance by serving as a liaison with aquaculturists.

Table 8. Summary of current status of extension services that support the prevention of aquatic animal diseases in aquaculture in participating countries (Survey Questionnaire parts 8.1–8.3)

Country	(8.1) Extension services exist?	(8.2) If Yes, description of services, name and contact details of responsible agency(ies), No. of staff and their specific areas	(8.3) If No, agency mandated to fulfill this function and contact details
BiH	Yes	<ul style="list-style-type: none"> • Veterinary Office of BiH is charged with monitoring the world epidemiological situation concerning animal diseases and to issue adequate measures. • In accordance with legislation, veterinary inspectors are obliged to constantly monitor the health status of farms, together with the veterinary organizations. 	
Croatia	Yes	<ul style="list-style-type: none"> • Competent authority (MAFRD, Veterinary Directorate), authorized veterinarians as well as the national laboratory for fish disease provide for support in prevention of AAD. 	
The former Yugoslav Republic of Macedonia	Yes	<ul style="list-style-type: none"> • The Performance of veterinary services (PVS) are authorized to carry out certain animal health protection measures against infectious diseases within the primary veterinary health activity. The authorized PVS implement the annual order from MAFWM for prevention, control and eradication of animal contagious diseases. They are under the supervision of the official veterinarians. They also issue certificates on animal health conditions. 80% of the funds generated from the fees are income of the national budget and 20% is income of the authorized PVS. Authorized PVS maintain records of all activities, observations and results and submit monthly reports to Regional Veterinary Offices and Animal Health Sector. 	
Montenegro Serbia	No No		<p data-bbox="1246 1621 1289 1648">NR</p> <ul style="list-style-type: none"> • Veterinary Directorate of MAFWM is responsible for these issues

SECTION 9. COMPLIANCE/ENFORCEMENT

Summary of results

A summary of the current status of capacity for compliance/enforcement of regulations on aquatic animal health in participating countries is presented in Table 9 (Questionnaire Parts 9.1–9.6). All countries have compliance services that monitor and enforce international trade in live aquatic animals, including aquatic animal health regulations; have compliance services that monitor and enforce domestic trade in live aquatic animals, including aquatic animal health regulations; and have regulations related to disease prevention and control in aquaculture facilities.

Analysis

Capacity to enforce aquatic animal health regulations is an essential component of a national aquatic animal health plan. This includes ensuring border compliance with regard to import and export of live aquatic animals (usually done by quarantine officers and customs officials located at points of entry) and enforcement of regulations pertaining to an array of domestic concerns, including use of drugs and chemicals for disease treatment, control of domestic movements, enforcement of zoning regulations, inspection of aquaculture premises, etc. Such activities are usually conducted by veterinary officers who may have special training and powers of enforcement.

Countries should review the effectiveness of current compliance and enforcement capacity and where warranted, incorporate planning for staffing, training and regulatory support to ensure adequate compliance. Self-enforcement by aquaculture producers groups through use of BMPs and HACCP can be effective in improving compliance with regulations, as are communication programmes targeting risky practices by aquaculturists and the general public.

Table 9. Current status of capacity for compliance/enforcement of regulations on aquatic animal health (AAH) in participating countries (Survey Questionnaire Parts 9.1–9.6)

Does country have compliance services that monitor and enforce:						
Country	(9.1) International trade in live aquatic animals, including AAH regulations?	(9.2) If Yes, brief description of service, name and contact details of responsible agency(ies), No. of staff involved and supporting legislation	(9.3) Domestic movements of live aquatic animals, including AAH regulations?	(9.4) If Yes, brief description of service, name and contact details of responsible agency(ies), no. of staff involved and supporting legislation	(9.5) Regulations related to disease prevention, management and control in aquaculture facilities?	(9.6) If Yes, brief description of service, name and contact details of responsible agency(ies), no. of staff involved and supporting legislation
BiH	Yes	<ul style="list-style-type: none"> • Veterinary Office of BiH and Foreign Trade Associations. • Relevant legal documents are: <ul style="list-style-type: none"> - Veterinary Law of Bosnia and Herzegovina - Decision on veterinary certificate on health status of the animals and consignments of animal origin in internal and foreign trade - Decision on the requirements for import and transit passage of live animals, products and food of animal origin, medicines, fodder and wastes to Bosnia and Herzegovina 	Yes	As described in points: 1.9, 2.2, 3.2	Yes	As described in points: 1.9, 3.2, 4.2, 5.3

Croatia	Yes	<ul style="list-style-type: none"> • Veterinary Directorate • Veterinary Inspections Directorate • Legislation described in 1B 	Yes	<ul style="list-style-type: none"> • Veterinary Directorate • Veterinary Inspections Directorate • Legislation described in 1B • Also described in 2.2 	Yes	<ul style="list-style-type: none"> • Veterinary Directorate • Veterinary Inspections Directorate
The Former Yugoslav Republic of Macedonia	Yes	<p>The CA for import controls is the Veterinary Directorate of MAFWE. The Sector for Border Veterinary Inspection (SBVI) is responsible for policy and co-ordination of import controls of products of animal origin and live animals. The SBVI comprises the Department for International Trade and Risk Analysis and the Veterinary Inspection Department, which are both responsible for the local border veterinarians at the nine national BIPs. The Departments issue the guidelines for veterinary import controls at BIPs and customs terminals.</p>	Yes	<p>The Animal Health Sector (AHS) of the Veterinary Directorate is the central CA for animal health. It is responsible for planning, coordinating and monitoring the activities of official and approved veterinarians in the field of animal health.</p>	Yes	<p>The Animal Health Sector (AHS) of the Veterinary Directorate is the central CA for animal health. It is responsible for planning, coordinating and monitoring the activities of official and approved veterinarians in the field of animal health.</p>

(continues)		<ul style="list-style-type: none"> • Law on Veterinary Health (OG of RM No. 113/07) • Book of rules on methods and procedures for transit and import, carrying out inspection and checks during transit and import of animals, products of animal origin and animal by products (OG of RM No. 129/08); • Book of rules laying down methods and procedures for registration of legal entities providing import, and/or re-export as well as the model and content of documentation for import, and/or re-export (OG of RM No. 67/08). 		<p>Veterinary inspectors at the RVOs and authorized veterinarians are responsible for implementation of various measures and controls in the field. A total of 40 official veterinarians based in 30 RVOs undertake measures for animal health protection and for control and supervision of inland trade and production.</p>		
Montenegro	Yes	Veterinary Administration	Yes	Veterinary Administration	Yes	Veterinary Service
Serbia	Yes	<ul style="list-style-type: none"> • International trade in live aquatic animals is monitored and enforced by Veterinary Directorate, Department for International Trade and Certification 	Yes	<ul style="list-style-type: none"> • Monitored and enforced by Veterinary Directorate, Department of Veterinary Inspection 	Yes	<ul style="list-style-type: none"> • Monitored and enforced by Veterinary Directorate, Department of Veterinary Inspection

SECTION 10. RESEARCH

Summary of results

Survey results detailing the status of current research activity for aquatic animal health in aquaculture in participating countries are summarized in Table 10 (Survey Questionnaire Parts 10.1–10.2). Respondents for four countries (Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia) indicated the existence of related research.

Analysis

Research capacity in aquatic animal health is necessary to the successful expansion of aquaculture development. Targeted and basic research can lead to better disease management, better understanding of national aquatic animal health status, support to risk analysis, improved diagnostic methods, etc.

The limited amount of specific research capacity in participating countries means that countries must often rely on research conducted by scientists in other nations. Often, such “borrowed” research may not be directly applicable to local situations and experimental testing must be undertaken to adapt these findings. In other cases, little or no relevant information on the specific problem may be available.

There are many mechanisms to improve access to research capacity. These include development of national aquatic animal health research laboratories, supporting linkages and research programmes within universities and the private sector, contracting of targeted research with foreign institutions, and development of a regional aquatic animal health centre. Countries should develop their individual strategies to ensure adequate access to research to support national priorities in aquatic animal health.

Table 10. Summary of current research activity in aquatic animal health (AAH) in aquaculture in participating countries (Survey Questionnaire Parts 10.1–10.2)

Country	(10.1) Existence of research activity including AAH in its scope?	(10.2) If Yes, brief description of research, institute, No. of staff and students involved and specific areas of involvement
BiH	No	
Croatia	Yes	<ul style="list-style-type: none"> • Croatian Veterinary Institute <ul style="list-style-type: none"> ▪ Specific and nonspecific immunoprophylaxys in sea bass; leader: Dražen Oraić, DVM, PhD ▪ Improvement of mollusc cultivation on the family owned farms; leader: Dražen Oraić, DVM, PhD ▪ Improvement of mollusc cultivation and prevention of contamination of molluscs on the family owned farms; leader: Dražen Oraić, DVM, PhD ▪ International project “Management of freshwater fisheries on bordering rivers – pilot study with holistic regional approach”2002. (project financed by Norwegian Ministry of fisheries and Ministry of Environment); leader: Ivan Katavić, PhD (in cooperation with Faculty of Sciences and Serbian and Bosnian partners) ▪ Dynamics and pathology parasitofauna system of marine fish farming; Ivona Mladineo, DVM, PhD (in cooperation with Institute for Oceanography and Fisheries)

The former Yugoslav Republic of Macedonia ¹	Yes	<ul style="list-style-type: none"> • Fish diseases in Republic of The former Yugoslav Republic of Macedonia and their characteristics • Freshwater fish diseases in The former Yugoslav Republic of Macedonia and Turkey - epidemiology and management • Parasite fauna in the salmonid fishes from Lake Ohrid and their dynamics • Parasite fauna in the fishes from Lake Prespa and their dynamics • Monitoring of parasite fauna at the fishes from Lake Prespa and life cycle of economically important and most frequent parasite species • Parasite fauna in river Vardar, The former Yugoslav Republic of Macedonia • Research activities on crustaceans of running water in The former Yugoslav Republic of Macedonia • Collaboration in research activity for fish Monogenea in Lake Ohrid, The former Yugoslav Republic of Macedonia
<p>Prof. Dr. Miso Hristovski University "Ss. Cyril and Methodius" Skopje Faculty of Veterinary Medicine Dean and Head of the Department for Biology and Pathology of Fish, Honeybees and Wildlife Lazar Pop-Trajkov 5-7, 1000 Skopje Tel.: +389 2 3240 728 Fax: +389 2 3114 619 Mob.: +389 70 244 040; +389 75 244 040 E-mail: hristovskim@fvm.ukim.edu.mk</p>		
<p>Ass. Aleksandar Cvetkovik, DVM, MSc University "Ss. Cyril and Methodius" Skopje Faculty of Veterinary Medicine Department for Biology and Pathology of Fish, Honeybees and Wildlife Lazar Pop-Trajkov 5-7, 1000 Skopje Tel.: +389 2 3240 757 Fax: +389 2 3114 619 Mob.: +389 76 441 176 E-mail: acvetkovic@fvm.ukim.edu.mk acecvetkovic@yahoo.com</p>		
Montenegro	Yes	<ul style="list-style-type: none"> • Diagnostic Veterinary Laboratory has two staff researching parasitic diseases in cage cultured fish
Serbia	Yes	<ul style="list-style-type: none"> • Monitoring of aquatic ecosystems with the aim of production of high quality and safe aquaculture products competitive on EU market, Institute of Meat Hygiene and Technology, Belgrade <ul style="list-style-type: none"> - Project leader: Dr Aurelija Spiric - Total number of staff: 15 - Specific areas of involvement: Control of contamination of aquatic ecosystems and implementation of good

¹ See Annex IV for a list of publications provided by The former Yugoslav Republic of Macedonia.

aquaculture practice in inland fisheries

- Scientific Veterinary Institute, Belgrade, Department for Fish Diseases
 - Development of the fish health control system in production and export - Project of the Ministry of Agriculture, Forestry and Water Management (MAFWM), 2006
 - Importance of renibacteriosis in the pathology of California trout - Project of the MAFW Management, 2007
-

SECTION 11. TRAINING

Summary of results

Survey results summarizing existence of formal training programmes in aquatic animal health in participating countries are presented in Table 11 (Questionnaire Parts 11.1–11.4). The results indicate that postgraduate-level training [(Master of Science (M.Sc.), Doctor of Philosophy (Ph.D)] is available to some extent in all countries but Montenegro. Limited formal non-degree training in aquatic animal health is also available in all countries.

Analysis

There is presently limited opportunity for advanced training in aquatic animal health within the region. Consideration of training needs is a key component of a national aquatic animal health strategy. Postgraduate training is probably best accomplished by programmes for national staff in universities having internationally recognized programmes and expertise in aquatic animal health.

Short term training is organized by the national veterinary services and as a component of international projects. Specific needs should be identified, appropriate training mechanisms identified, and funding sought.

Table 11. Summary of current status of training that supports aquatic animal health (AAH) in participating countries (Survey Questionnaire Parts 11.1–11.4).

Country	(11.1) Post-graduate training (M.Sc./Ph.D.)	(11.2) If Yes, Description of programmes, contact details, no. of staff and students involved, and areas of involvement	(11.3) Formal non-degree training	(11.4) If Yes, description of programmes, contact details, No. of staff and students involved, and areas of involvement
BiH	Yes	<ul style="list-style-type: none"> • Faculty of Veterinary Medicine, Sarajevo Zmaja od Bosne 90, tel: +387 33 655 922, www.vfs.unsa.ba Areas: Fish Disease Epizootiology, Diagnostic, Prophylaxis, Therapy, Food Higiene and Breeding • Faculty of Agriculture in Sarajevo; Zmaja od Bosne 8, Tel.:+387 33 653033, www.ppf.unsa.ba; Areas: Breeding and Feeding of Fish, Production • Faculty of Agriculture in Mostar; Biskupa Čule b.b., Tel.:+387 36 337 102, www.apfmo.org, Areas: Breeding and Feeding of Fish, Production • Faculty of Nature Sciences in Sarajevo; Zmaja od Bosne 33, Tel.:+387 33 250 510, www.pmf.unsa.ba, Areas: Biology 	Yes	<ul style="list-style-type: none"> • Trainings via FAO TCP 3101/BiH concerning aquatic animal health and food safety • Trainings organized by the Veterinary Office of BiH on AAH legislation, conditions in the establishments, food safety, etc. • Trainings organized by the FBiH Ministry of Agriculture in cooperation with the Center for Fish Diseases on sampling procedures

Croatia	Yes	<p>Ph.D. study: Bases of Fish Disease Epizootiology, Prophylaxis and Therapy: Students will be qualified for scientific activities concerning prophylaxis and therapy of fish diseases.</p> <p>Viral Diseases of Fish: Students will be qualified for scientific activities in fish viral diseases, especially laboratory diagnostics.</p> <p>Bacterial Fish Diseases: Students will be qualified for scientific activities in bacterial fish diseases, especially bacterial laboratory diagnostics</p> <p>Fungal Fish Diseases: Students will be qualified for scientific activities in fungal fish diseases.</p> <p>Parasitic Fish Diseases: Students will be qualified for scientific work in parasitic fish disease especially field and laboratory diagnostics.</p>	Yes	<ul style="list-style-type: none"> • MAFRD- TAIEX trainings regarding legislation on AAH • Workshops on active dialogue with food business operators • Croatian Veterinary Chamber and Veterinary University organize trainings for veterinarians and stakeholders. • Croatia Veterinary Chamber organizes educational training for food business operators. • Occasional education of field veterinarians and stakeholders provided by NRL for aquatic animal health, e.g. workshop organized by TAIEX, MAFRD and CVI: Workshop on implementation of aquatic animal health surveillance based on Directive 88/2006/EC
		<p>Department for Fish and Bees Biology and Pathology, Faculty of Veterinary Medicine, Heinzelova 55, 10000 Zagreb Željka Matašin, DVM, PhD Prof. Zdravko Petrinc, DVM, PhD</p>		

The former Yugoslav Republic of Macedonia	Yes	<p>Programmes are organized by Faculty of Veterinary Medicine. Information available at: www.fvm.ukim.edu.mk</p> <p>Currently there are only MSc studies on the biology, culture and diseases of fish. The programme includes methodology and biostatistics, anatomy, histology and embryology of fish, molecular biology and clinical immunology.</p> <p>Ph.D. programme is under development.</p> <p>Prof. Dr. Miso Hristovski University "Ss. Cyril and Methodius" Skopje Faculty of Veterinary Medicine Dean and Head of the Department for Biology and Pathology of Fish, Honeybees and Wildlife Lazar Pop-Trajkov 5-7, 1000 Skopje Tel.: +389 2 3240 728 Fax: +389 2 3114 619 Mob. +389 70 244 040; +389 75 244 040 E-mail: hristovskim@fvm.ukim.edu.mk</p>	No
Montenegro	No		<p>Yes</p> <ul style="list-style-type: none"> • Support to the Fishery Sector in Serbia and Montenegro – An EU-funded project managed by the European Agency for Reconstruction, mainly based on open sea fishery, small amount dedicated to aquaculture, 2007–2008 • FAO TCP 3101/BiH Project “Strengthening aquatic animal health capacities in Bosnia and Herzegovina”
Serbia	Yes	<p>Training related to aquaculture has been negligible.</p>	No

SECTION 12. EXPERTISE

Summary of results

A summary of results obtained by the Survey Questionnaire (Section 12) with regard to the numbers of individuals actively employed in areas of direct relevance to aquatic animal health in participating countries is presented in Table 12. All countries have advanced degree (Ph.D. or M.Sc.) holders as follows – BiH: unavailable; Croatia: total of 17 staff with Ph.D. and 3 DVM; The former Yugoslav Republic of The former Yugoslav Republic of Macedonia: 1 Ph.D. and 1 M.Sc.; Montenegro: 1 Ph.D., 1 M.Sc. and 1 DVM; and Serbia 6 Ph.D., 3 M.Sc. and 6 DVM.

Analysis

An important consideration is assessing “available” expertise (i.e. the number of experts who are actually spending a significant amount of their time in conducting research, laboratory diagnostics or field studies related to aquatic animal health. Expertise that is primarily occupied with administration and management, while valuable for policy setting and planning, often does not contribute significantly to implementation of aquatic animal health programmes. Countries will need to access existing expertise to determine if it is adequate and appropriately utilized.

Table 12. Summary of estimated number of individuals with tertiary qualifications in fields related to aquatic animal health in participating countries (only individuals actively employed in a capacity with direct relevance to the field of expertise are listed) (Survey Questionnaire Section 12).

Country	Doctorate degree (by area of expertise)	Masters degree (by area of expertise)	Veterinary degree, bachelors degree, other degree
BiH ¹	NR	NR	NR
Croatia ²	Parasitology (experimental) 4		3 DVM
	Virology 2		
	Bacteriology 2		
	Mycology 2		
	Epidemiology 3		
	Histopathology 2		
	Molecular diagnostics 2		
	Subtotal 17		
The former Yugoslav Republic of Macedonia	Parasitology (taxonomy) 1	1	
	Bacteriology		
Montenegro	Parasitology (experimental)	1	1 DVM
	Parasitology (taxonomy) 1		
Serbia	Parasitology (experimental) 1	1	1
	Virology 1	1	
	Bacteriology 1	1	
	Epidemiology		1
	Histopathology 1		
	Toxicology/		
	Water quality 1		2
	Molecular diagnostics		2
	<u>Aquatic biosecurity</u> 1	3	6
	Subtotals 6		

¹Although BiH indicated the presence of 158 doctoral, 168 masters, 2 079 DVM and 59 other (veterinary specialists) advanced degree holders, information as to how many of these personnel are actually working in disciplines related to aquatic animal health was unavailable.

²Data collected from Veterinary University, Croatian Veterinary Institute Zagreb and Veterinary Directorate.

SECTION 13. INFRASTRUCTURE

Summary of results

Survey results on current infrastructure (laboratories, office space, and other) dedicated solely to aquatic animal health activities or shared with other groups are summarized in Table 13 (Survey Questionnaire Parts 13.1–13.2). All respondents indicated the existence of infrastructure dedicated for aquatic animal disease diagnosis, as well as more general diagnostic facilities that could be shared with other subsectors.

Analysis

Based on the available information, it appears that while all countries have some dedicated facilities, there is a general requirement to strengthen infrastructure in specific areas of need. Countries should consider current and future infrastructure needs when developing aquatic animal health strategies. The possibility of shared facilities should be considered.

Table 13. Summary of infrastructure dedicated to aquatic animal health in participating countries (Survey Questionnaire Parts 13.1–13.2)

Country	(13.1) Infrastructure dedicated solely to aquatic animal health			(13.2) Infrastructure available for aquatic animal health activities but shared with other groups		
	(a) Laboratories (type)	(b) Office space	(c) Other	(a) Laboratories (type)	(b) Office space	(c) Other
BiH	1			2		
Croatia	1 National Reference Laboratory	Zagreb		4 official laboratories	1 in Split, 1 in Rijeka and 2 in Zagreb	
The former Yugoslav Republic of Macedonia	1 Laboratory for diagnosis of fish diseases	25 m ²		Laboratories for bacteriology, mycology, virology, immunology, serology and parasitology	200 m ²	
Montenegro	1 Laboratory for diagnosis of fish diseases (within DVL)			Diagnostic Veterinary Laboratory, Podgorica		
Serbia	Laboratory for bacteriology, virology, ELISA, Immunofluorescence	1		Institute of Meat Hygiene and Technology, Belgrade Scientific Veterinary Institute, Belgrade (molecular diagnostics, histopathology, parasitology)	3	

SECTION 14. LINKAGES

Summary of results

A summary of current international and domestic linkages and cooperation related to aquatic animal health in participating countries is given in Table 14 (Survey Questionnaire parts 14.1–14.2). Most international and domestic linkages cited by respondents did not clearly relate to aquatic animal health, with the exception of the recent FAO TCP/BiH/3101 Project “Strengthening aquaculture health management in Bosnia and Herzegovina”.

Analysis

Developing international regional and domestic linkages and cooperation is clearly an area that offers great potential to increase aquatic animal health capacity among participating countries. Cooperation in research and training is possible via international agencies such as the FAO and OIE, via bilateral assistance, and with foreign universities and experts.

There is a great potential for regional cooperation and networking in almost all areas of aquatic animal health. Examples include the development of standardized procedures for import and export of live aquatic animals, harmonization of legislation, shared communication structures (websites, newsletters), development of a regional aquatic animal health information system (pathogen database, regional disease diagnostic and extension manuals), linkage of experts, cooperative research programmes, development of regional strategy and policy, regional disease reporting, a regional emergency response system, regional reference laboratory, regional risk analysis case studies for specific commodities, coordinated training efforts, etc. Mutual areas of concern need to be identified and prioritized on a regional basis and mechanisms for funding identified.

Domestically, linkages between agencies, particularly those agencies responsible for fisheries and aquaculture, veterinary services, biosecurity and environmental/conservation issues, should be promoted to develop standardized procedures. Cooperation between government, universities and the private sector should also be explored.

Table 14. Summary of current international and domestic linkages and cooperation related to aquatic animal health in participating countries (Survey Questionnaire Parts 14.1–14.2)

Country	(14.1) International, regional and bilateral linkages, cooperation and joint projects		(14.2) Domestic linkages, projects and cooperation between government, universities and/or private sector	
	Nature of activity	Participating agencies	Nature of activity	Participating agencies
BiH	FAO TCP/BiH/3101 Project “Strengthening aquaculture health management in Bosnia and Herzegovina”	SVO, FAO	<ul style="list-style-type: none"> • SIDA Project “Support to eradication of Brucellosis in BiH” • FAO Regional Project “Preparedness for Avian and Pandemic Influenza” • IPA 2008 Project “Control of Rabies and Classical Swine Fever in wildlife and domestic animals” 	

Country	(14.1) International, regional and bilateral linkages, cooperation and joint projects		(14.2) Domestic linkages, projects and cooperation between government, universities and/or private sector	
	Nature of activity	Participating agencies	Nature of activity	Participating agencies
Croatia	<p>“Web-Based GIS and Database Application” – purpose to allow distribution and management of epidemiological data and spatial functionality by web – CVI SPLIT</p> <p>From 1998 to 2002, CVI was included in the research project “Development of mollusks cultivation in Croatia” financed by FMFA and lead by Dr D. Buestel, IFREMER, Palavas, France;</p> <p>From 2003 to 2005, project financed by Norwegian Government “Management of freshwater fisheries on bordering rivers – Pilot study with holistic regional approach”</p>	<p>Interreg-CAPS</p> <p>French Ministry of Foreign Affairs (FMFA)</p> <p>Norwegian Government</p>		

Country	(14.1) International, regional and bilateral linkages, cooperation and joint projects		(14.2) Domestic linkages, projects and cooperation between government, universities and/or private sector	
	Nature of activity	Participating agencies	Nature of activity	Participating agencies
The former Yugoslav Republic of Macedonia	Western Balkan Regional Seminar on Aquatic Animal Health (under FAO TCP/BiH/3101)	FAO	<ul style="list-style-type: none"> • Project National Animal Identification and Registration System • Project EuropeAid/123678/D /SER/MK – Support to Integrated Border Management • Project EuropeAid/ 125033/D/SER/MK – National Animal Identification Programme – phase 3 • Project EuropeAid/ 126236/C/SER/MK - Technical Assistance Border Control 	European Agency for Reconstruction (Office of EAR in Skopje)
Montenegro	Support to the Fishery Sector in Serbia and Montenegro – An EU-funded project managed by the European Agency for Reconstruction, mainly based on open sea fishery, small amount dedicated to aquaculture, 2007–2008			
		FAO TCP/BiH/ 3101 Project “Strengthening aquaculture health management in Bosnia and Herzegovina”		

Country	(14.1) International, regional and bilateral linkages, cooperation and joint projects		(14.2) Domestic linkages, projects and cooperation between government, universities and/or private sector	
	Nature of activity	Participating agencies	Nature of activity	Participating agencies
Serbia	Support to the Fishery Sector in Serbia and Montenegro – An EU-funded project managed by the European Agency for Reconstruction, mainly based on open sea fishery, small amount dedicated to aquaculture, 2007–2008		<p>Projects of the Ministry for Science and Technological Development:</p> <ul style="list-style-type: none"> - Enhancement of carp and trout feeding technology in self sustained aquaculture - Use of geothermal waters for fish production - Enhancement of semi-intensive production of carp (<i>Cyprinus carpio</i>) in self sustained aquaculture - Reintroduction and repopulation of tench (<i>Tinca tinca</i>) in fishery systems and open water 	<p>Cooperation with Agricultural Faculty, Zemun, 2004-2007.</p> <p>Cooperation with Agricultural Faculty, Novi Sad, 2004–2007.</p> <p>Cooperation with Agricultural Faculty, Zemun, 2007–2011.</p> <p>Cooperation with Agricultural Faculty, Novi Sad, 2007–2011.</p>

SECTION 15. FUNDING SUPPORT

Summary of results

Participating countries indicated that dedicated budgets for aquatic animal health were quite limited (however, note that support for aquatic animal health activities is typically incorporated within the overall budgets of veterinary services). In all cases, funding was considered to be inadequate to address current and future needs.

Analysis

Additional funding support for aquatic animal health in the five participating countries is clearly needed. This is an important issue, as without adequate budget, little improvement in capacity can be achieved. Each country will have to address its specific funding needs.

Table 15. Estimated total annual budget dedicated specifically to aquatic animal health (AAH) activities in participating countries (Survey Questionnaire Parts 15.1–15.3)

Country	(15.1) Estimated total annual budget dedicated specifically to AAH activities				(15.2) Is Funding adequate for current and future needs?	(15.3) If No, % increase required over next 5 years
	(a) Regular programme support	(b) Special funding/ project support	(c) Foreign assisted project support	(d) Total support		
BiH	€25 000 (for viral fish diseases) + EUR50 000 (for residues, not exclusively for fish)		€250 000 FAO TCP 3101/BiH Project “Strengthening aquatic animal health capacities in Bosnia and Herzegovina”		No	Depending on global financial situation, amount should increase by least 30%.
Croatia	US\$88 565,81			US\$88 565,81	No	Yearly increase of 10-20 % planned; will follow the increase of production quantities.
The former Yugoslav Republic of Macedonia					No	
Montenegro	€2 700,00			€2 700,00	No	300%
Serbia	0	0	0	0	No	NA

SECTION 16. CURRENT CHALLENGES AND CONSTRAINTS

Summary of results

Respondents provided detailed information of the current challenges that their countries are facing in their efforts to improve aquatic animal health capacity and noted their major constraints (Tables 16A and 16B; Survey Questionnaire Parts 16.1 and 16.2).

Challenges related to preventing the entry and spread of exotic pathogens included the following:

- (1) the need for meeting OIE and national standards (Croatia and The former Yugoslav Republic of Macedonia);
- (2) improving risk analysis capacity (BiH, The former Yugoslav Republic of The former Yugoslav Republic of Macedonia, Montenegro);
- (3) improving disease monitoring (BiH);
- (4) improving diagnostics (Serbia); and
- (5) upgrading specific laboratory capacity (BiH, Montenegro).

Challenges related to preventing the domestic spread of serious pathogens included the following:

- (1) upgrading stakeholder knowledge (BiH, Montenegro);
- (2) developing contingency plans (BiH, Montenegro);
- (3) upgrading data collection and analysis (BiH, Montenegro);
- (4) implementing national surveillance and monitoring programmes (Croatia, The former Yugoslav Republic of Macedonia, Montenegro);
- (5) aligning with EU legislation (Montenegro); and
- (6) dealing with disrespect of current legislation (Serbia).

Challenges related to meeting international and trading-partner standards for health certification included the following:

- (1) improving diagnostic capacity and issuance of relevant legal documents (BiH);
- (2) meeting OIE and EU standards (Croatia, The former Yugoslav Republic of Macedonia);
- (3) drafting and adoption of EU-harmonized legislation (Montenegro);
- (4) dealing with other legislative constraints (Serbia); and
- (5) education (Montenegro and Serbia).

Challenges related to controlling mortalities and losses due to pathogens in aquaculture facilities included the following:

- (1) improving education (BiH, Montenegro);
- (2) improving communication (BiH, Montenegro);
- (3) documenting and recording on-farm mortalities (Croatia, The former Yugoslav Republic of The former Yugoslav Republic of Macedonia, Montenegro); and
- (4) obtaining prompt notification of mortalities from producers (Serbia).

Challenges related to the use of antibiotics and chemotherapeutants in aquaculture included the following:

- (1) improving capacity to inspect and control use (The former Yugoslav Republic of Macedonia, Montenegro and Serbia).

Other serious challenges likely to arise in the next five years included the following:

- (1) possibility of new diseases being introduced (Croatia, The former Yugoslav Republic of Macedonia, Serbia);
- (2) the need to constantly educate stakeholders, veterinary staff and laboratory staff (Montenegro);
- (3) legislative challenges (Montenegro); and
- (4) budgetary constrictions (Montenegro).

Major constraints to implementing effective aquatic animal health programmes included the following:

- (1) budgetary limitations (all countries);
- (2) educational constraints (all countries);
- (3) legislative issues (Montenegro, Serbia);
- (4) lack of risk analysis capacities and contingency plans (Croatia, The former Yugoslav Republic of Macedonia); and
- (5) lack of staff (Serbia).

Analysis

The current challenges for improving aquatic animal health capacity in participating countries touched on almost all major areas of a national aquatic animal health strategy. These include the need for improved policy and planning, improved expertise in areas such as risk analysis and diagnostics, better surveillance, monitoring and control, improved legislation and better stakeholder consultation. These are all areas that should be given high priority in preparing a regional approach to improving aquatic animal health capacity.

Funding is noted as a current constraint and a future challenge by several countries, indicating that the case for improved capacity in aquatic animal health must be made more strongly to senior government managers.

Table 16A. Summary of current challenges related to improving aquatic animal health (AAH) capacity in participating countries (Survey Questionnaire Part 16.1)

Country	(16.1) Type of Challenge					
	(a) Preventing entry and spread of exotic pathogens	(b) Preventing domestic spread of serious pathogens	(c) Meeting International and trading partner standards for health certification	(d) Controlling mortalities/ losses due to pathogens in aquaculture	(e) Use of antibiotics/ chemo-therapeutants	(f) Other serious challenges likely in next 5 years
BiH	Developing adequate risk analysis resources for AA and monitoring programmes for KHV and ISA, with subsequent upgrading of laboratory capacities	Upgrading stakeholder knowledge on prevention and early detection of VHS, IHN and SVC; developing appropriate contingency plans; upgrading data collection and analysis.	Improving diagnostic capacities and issuing of relevant legal documents (including drafting of updated monitoring programmes)	Maintaining good quality of education and communication		

Croatia	Trade in accordance with OIE standards and national legislation	Implementation of national surveillance and monitoring programmes for AA diseases in accordance with legislation	Meeting OIE and EU standards	Documentation and records of mortality on farms	Usage is prescribed by Law on Veterinary Medicinal Products and official records must be kept as evidence on use of antibiotics and other chemotherapeutants for disease prevention and/or treatment	Possible introduction of new emergency AA diseases
The former Yugoslav Republic of Macedonia	Trade in accordance with OIE standards and national legislation; developing adequate resources for AA risk analysis	Implementation of national programmes for surveillance and monitoring of AA diseases made in accordance with legislation ¹	Meeting OIE and EU standards	Documentation and records of mortality on farms	Usage is prescribed by Law on Veterinary Medicinal Products and official records must be kept as evidence on use of antibiotics and other chemotherapeutants for disease prevention and/or treatment	Possible introduction of new emergency AA diseases

¹ Relevant legislation includes the rulebook for diseases compulsorily notifiable to the CA. which is in draft version and is according to the OIE's *Aquatic Animal Health Code*; and EU legislation: Council Directive 82/894/EEC of 21 December 1982 on the notification of animal diseases within the Community; 2008/755/EC: Commission Decision of 24 September 2008 amending Decision 2005/176/EC laying down the codified form and the codes for the notification of animal diseases pursuant to Council Directive 82/894/EEC; and Council Directive 2006/88/EC of 24 October 2006 on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals.

Montenegro	Development of adequate risk analysis resources for aquatic animals; upgrading of laboratory capacities	Alignment with EU aquatic animal health legislation and implementation of national programmes for surveillance and monitoring of aquatic animal diseases in accordance with legislation; determining national disease status; upgrading stakeholder knowledge on prevention and early detection of aquatic diseases; developing appropriate contingency plans; upgrading data collection and analysis.	Preparation and adoption of the EU legislation on trade of aquaculture animals; education	Education; improvement of communication; documentation and records for farm mortalities	Training on inspection control, education	Constant education of stakeholders, veterinary administration and laboratory staff; legislative
Serbia	Prompt diagnosis	Disrespect of current legislation	Legislation mostly outdated or lacking, not harmonized with EU; official controls and monitoring system must be regulated in a way acceptable to EU; educational constraints	Obtaining prompt notification from producers	Inadequate inspection control, education	Budget constrictions, import of new diseases

Table 16B. Summary of the major constraints to implementing an effective aquatic animal health programme, in order of importance, as identified by the respondents (Survey Questionnaire Part 16.2)

Country	(17.1) Major constraints
BiH	<ul style="list-style-type: none"> • Limited financial resources • Need for constant education of all stakeholders
Croatia	<ul style="list-style-type: none"> • Limited financial resources • Need for education of stakeholders • Lack of risk analysis • Lack of contingency plans
The former Yugoslav Republic of Macedonia	<ul style="list-style-type: none"> • Limited financial resources • Need for constant education of all stakeholders • Lack of contingency plans • Lack of risk analysis capacities
Montenegro	<ul style="list-style-type: none"> • Lack of financial resources • Constant education of stakeholders, veterinary administration and laboratory staff • Legislative constraints
Serbia	<ul style="list-style-type: none"> • Limited funding support • Legislative constraints • Understaffing • Education

ADDITIONAL INFORMATION ON AQUACULTURE TRENDS, RESOURCES AND DATA

Respondents from four countries provided supplementary information on national aquaculture development and trends as follows:

Bosnia and Herzegovina

Length and tradition of aquaculture

The earliest records of organized fish production date back to 1892. After the Second World War, this production sector expanded rapidly in response to increasing demands by a steadily growing urban population. Before the 1992–1995 war, BiH had a well-developed aquaculture sector, especially production of salmonid fish (rainbow trout, brown trout and brook char), whereas cyprinids (common carp, grass carp and silver carp) were cultured to a lesser extent. During the 1992–1995 war, most of the production facilities were destroyed. The process for renewal of the aquaculture sector started immediately after the war, and by the year 2000 the first modern fish processing companies were established. The abundant water resources of BiH provide ideal conditions for further development of aquaculture and fisheries through the installation of hatcheries and grow-out facilities on suitable rivers and floating cages in lakes and in the Bosnian part of the Adriatic Sea. Furthermore, existing resources also provide excellent conditions for sport fishing and fishing-based tourism.

Production systems and species

The most important species are:

- salmonids (rainbow trout, brown trout, brook char)
 - cyprinids (common carp, grass carp, silver carp)
 - catfish
 - marine species (European seabass, gilthead seabream, dentex)
- Salmonid fish farms are mainly made from concrete with optimal flows and high quality waters. Aeration has not been used. As well, after the war there was a great expansion of cage fish farming. Today cages of 10 x 10 x 10 m are used.
 - Cyprinid fish farms have been made from soil and have a long tradition in production. In Bosnia and Herzegovina, there is no hatchery for cyprinid species.
 - Marine aquaculture is represented by only two fish farms (cages) in Neum in the Adriatic Sea. Although mariculture does not make a significant contribution to overall aquaculture production in BiH, since 1999 production of marine species has increased.
 - *Number and sizes of aquaculture farms:* 31 salmonid fish farms, 6 cyprinid fish farms and 2 marine fish farms
 - *Processing plants for aquaculture products:* 4

Croatia

Production systems and species

Aquaculture species:

- carp (*Cyprinus carpio*)
- grass carp (*Ctenopharyngodon idella*)
- rainbow trout (*Oncorhynchus mykiss*)
- seabass (*Dicentrarchus labrax*)
- seabream (*Sparus aurata*)
- blufin tuna (*Thunnus thynnus*)
- blue mussel (*Mytilus galloprovincialis*)
- European flat oyster (*Ostrea edulis*)

In the Republic of Croatia, 116 establishments for fish products have been approved. Out of that number, 61 facilities have been given permission for export to the EU.

Fish farms

- freshwater fish	35
- sea fish	36
- tuna	8

LBM production areas

- 17 production areas
 - 14 production areas in which bivalve molluscs are being cultivated
 - 3 production areas from which bivalve molluscs are being harvested
- 4 preliminary production areas
 - 2 preliminary production areas in which bivalve molluscs are being cultivated
 - 2 preliminary production areas from which bivalve molluscs are being harvested

The former Yugoslav Republic of Macedonia

Length and tradition of aquaculture

The former Yugoslav Republic of Macedonia does not have open sea and the water resources generally consist of lakes, rivers and artificial accumulations, including aquaculture establishments for farming. Aquaculture is more than 100 years old (e.g. traditional way of hunting with cormorants in Dojran lakes), although, organized production with respect to managing aquatic biosecurity has occurred within the past 20 years. The former Yugoslav Republic of Macedonia had a well-developed aquaculture sector, especially for production of salmonids (rainbow trout, brown trout), whereas cyprinids (common carp, grass carp and silver carp) and catfish are cultured to a lesser extent. The abundant water resources provide ideal conditions for further development of aquaculture and fisheries through the installation of hatcheries and grow-out facilities on suitable rivers and the use of floating cages in artificial accumulations or lakes. Furthermore, existing resources also provide excellent conditions for sport fishing and fishing-based tourism.

Production systems and species

- salmonids: rainbow trout, brown trout
- cyprinids: common carp, grass carp, silver carp
- catfish
- Ohrid trout (*Salmo letnica*) and carp (*Rutilus rutilus dojranensis*) are reared only in Ohrid and Dojran lakes as endemic species.
 - *Total production, based on latest available statistics, with a breakdown by main species and by regions: 62 fish farms, providing an annual production of 992 000 kg of salmonids and cyprinids in 2008 (production in years 2007 and 2006 was 771 000 kg and 958 000 kg, respectively).*

Montenegro

Length and tradition of aquaculture

- Trout farming started during the 1950s; seabream, seabass and mussel farming within the last 20 years.

Production systems and species

- trout (cage system and race ways)
- seabream and seabass (cage system)

- mussels (long-line)
- *Total production, based on latest available statistics, with a breakdown by main species and by regions:*
 - trout: 450 tonnes
 - seabream and seabass: 130 tonnes (2008, Ministry of Agriculture)
 - mussels: 200 tonnes (2008, Ministry of Agriculture)
- *Breakdown of production (e.g., for consumption, export, stocking, etc.):*
 - trout – export 20 tonnes; consumption – no data, stocking – no data
 - mussels – export 20 tonnes, consumption 180 tonnes
- *Number and sizes of aquaculture farms:*
 - 24 trout farms, most between 5–20 tonnes; 4 large (50–120 tonnes)
 - 2 seabream/seabass cage systems
 - 16 mussel farms (10–50 tonnes)
- *Processing plants for aquaculture products:* None

Serbia

Production systems and species

- *Total production, based on latest available statistics, with a breakdown by main species.*

Common name	Scientific name	2006, kg	2007, kg	2008, kg
Carp	<i>Cyprinus carpio</i>	4 309 311	5 517 826	5 760 469
Catfish	<i>Silurus glanis</i>	16 579	13 621	19 973
Silver carp	<i>Hypophthalmichthys molitrix</i>	307 201	846 418	801 542
Grass carp	<i>Ctenopharyngodon idella</i>	147 203	207 860	268 136
Pike	<i>Esox lucius</i>	1 733	1 013	4 916
Zander	<i>Stizostedion lucioperca</i>	8 431	13 073	8 813
Other (white fish)		162 466	126 687	510 362
Rainbow Trout	<i>Oncorhynchus mykiss</i>	607 795	641 947	1 051 966

- *Breakdown of production (e.g., for consumption, export, stocking, etc.):* mainly for domestic consumption
- *Number and sizes of aquaculture farms:* 16 registered fish farms with export control number
- *Processing plants for aquaculture products:* 6 registered processing plants with export control number

Questionnaire Survey Form

Western Balkans Regional Aquatic Animal Health Capacity and Performance Survey

Background

This regional survey of aquatic animal health capacity and performance was recommended by the recent Western Balkan Regional Seminar on Aquatic Animal Health, an activity under the FAO/TCP/3101/BiH “Strengthening Capacity on Aquaculture Health Management in Bosnia and Herzegovina” held from 19–22 May 2008 in Sarajevo and is strongly supported by representatives of the following participating countries (Bosnia and Herzegovina, Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia). It is one of a series of activities being conducted under a TCP Facility from the FAO entitled “Assistance to Western Balkans Countries for Improving Compliance with International Standards for Aquatic Animal Health,” an initiative that is expected to lead to the development of a proposal for an FAO Regional TCP Project “Western Balkans Regional Aquatic Animal Health Strategy Development”.

The regional survey will provide background information for assessment of the current status and future needs in aquatic animal health capacity and expertise of countries in the Western Balkans Region that will assist in formulating a proposal for an FAO Regional TCP Project. The activities being conducted under the TCP Facility support include: (i) assessment of institutional and human resource capacities on aquatic animal health at national level through a questionnaire survey, (ii) follow-up field visits to verify survey results and collect additional key data, (iii) preparation of a proposal for a Regional TCP Project and (iv) organization of a regional workshop to present the results of the survey, and further develop and achieve consensus on the regional TCP project proposal.

The seven countries comprising the Western Balkans (Albania and the newly independent nations of the former Yugoslavia – Bosnia and Herzegovina, Croatia, The former Yugoslav Republic of Macedonia, Montenegro, Serbia and Slovenia) have a long history of aquaculture. These countries are in the process of developing modern aquaculture production systems as a means of providing healthy low-cost protein to their citizens and generating export earnings. The region has an advantageous situation with regard to aquaculture development, having large areas of high-quality fresh waters, skilled and relatively inexpensive labour, and proximity to large markets in the European Union (EU).

To realize this potential, Western Balkan countries are attempting to develop the capacity to meet international standards for trade in live aquatic animals (fish, crustaceans and molluscs) and their products. Primary among these are the standards of the World Organisation for Animal Health (formerly the Office International des Epizooties, OIE) as expressed in the OIE *Aquatic Animal Health Code* and *the Manual for Diagnosis of Aquatic Animal Diseases*, the Sanitary and Phytosanitary Agreement (SPS Agreement) of the World Trade Organization (WTO), and the standards for market access as required by the European Union, as expressed in various EU Directives. Achieving these goals requires meeting high standards for aquaculture production, including a high level of capacity to address issues related to the control and prevention of aquatic animal diseases.

Purpose

The purpose of this survey is to obtain information on national capacity and the agencies mandated to implement aquatic animal health programmes for five Western Balkans regional countries (Bosnia and Herzegovina, Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia). The survey also collects relevant information essential to support the development of the aquaculture sector through healthy aquatic production and seeks opinions on the components and activities that might be included in a regional aquatic animal health strategy. The results of this survey will help guide regional and national strategic planning for improving aquatic animal health and assuring adequate and rational support services to achieve sustainable aquaculture development. The survey questionnaire contains 18 sections pertaining to: (1) international trade in live aquatic animals and national border controls, (2) control of domestic movement of live aquatic animals and other domestic activities that may spread pathogens, (3) policy and planning, (4) legislation, (5) disease surveillance/monitoring, (6) disease diagnostics, (7) emergency preparedness and contingency planning, (8) extension services, (9) compliance/enforcement, (10) research, (11) training, (12) expertise, (13) infrastructure, (14) linkages and cooperation, (15) funding support, (16) current challenges and constraints and (17) additional information.

Participation

Five Western Balkan countries (Bosnia and Herzegovina, Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia) will participate in the survey.

Process

The survey questionnaires, jointly developed by FAO FIRA(M. Reantaso) and the International Consultant (J.R. Arthur) in collaboration with the National Consultants (S. Tanković, N. Fejzić), will be conducted between mid-May and end of August 2009.

This survey should be completed by the national competent authority or other senior government officer with primary responsibility for national aquatic animal health issues, with the assistance of national aquaculture experts and concerned laboratory personnel. FAO will summarize and analyze the survey results and incorporate the outcomes of the field visits that will be undertaken between May and August 2009. The survey results and associated field survey data will be used to prepare a draft proposal for an FAO Regional TCP Proposal: *Assistance to Western Balkan Countries for Improving Compliance to International Standards on Aquatic Animal Health*. The results of the survey and the draft project proposal will be presented to participants at the FAO TCP/RER/3206 Regional Proposal Development Workshop “Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health”, to be held in Zagreb, Croatia in early September 2009.

Product

A summary and critical analysis of the survey results will be prepared and will form the basis for the development of draft Regional TCP Proposal that will be presented, discussed, revised and endorsed during the regional workshop.

Details of person completing the survey questionnaires

Country:

Contact information for person completing this survey:

Name:

Title:

Institution:

Mailing address:

Telephone:

Facsimile:

E-mail:

Signature of completing official:

Date:

Description of Competent Authorities on various aspects of aquatic animal health responsibilities

Responsibility	Agency/Ministry	Mandate/Authority
Aquatic animal health with regard to export and import matters		
Development of biosecurity policies, for example conduct of risk analysis, negotiation of export protocols for animal health and for assessing foreign Competent Authorities		
Control of aquatic animal diseases and pharmaceutical product residues		
Inspection, surveillance and reporting		
Health certificates and quarantine, laboratory testing		
Diagnostics		
Research		
Extension		
Training		
Education		
Others		

SECTION 1. International trade in live aquatic animals and national border controls

- 1.1 Is your country a member of the **World Organisation for Animal Health** (OIE, Office International des Epizooties)?
- Yes No
- 1.2 If **yes**, please indicate the government agency/person that is recognized by the OIE as your country's competent authority for purposes of reporting aquatic animal health's status ? (If the Chief Veterinary Officer, please indicate):
- 1.3 Is your country a member of the **World Trade Organization** (WTO)?
- Yes No
- 1.4 Is your country a member of the European Union or currently in the process of applying for EU membership?
- EU Member candidate country potential candidate
- 1.5 If in process of application for EU membership, please briefly summarize status of application.
- 1.6 If your country is currently a non-EU member, does it have approval to export aquatic animal commodities to the European Union?
- has approval seeking approval not seeking approval
- 1.7 If seeking approval, please briefly summarize status of application.
- 1.8 Does your country have **legislation** that supports or strengthens government control of imports and exports with respect to aquatic animal health?
- Yes No
- 1.9 If **yes**, name and briefly describe all legislation and where applicable, indicate which specific EU directives or decisions the legislation conforms to (e.g. EU Directive 8/2006 which replaced 91/67/EEC, 93/53/EEC and 95/70/EEC) and others listed in Annex 1:
- 1.10 Does your country export live **aquatic animals** to other countries?
- Yes No

- 1.11 If **yes**, please briefly list the principal species exported, their life cycle stage(s), the destination country(ies), volumes (please indicate clearly as e.g. kgs, number of live animals, etc.), estimated values (please indicate in US\$) and the time period. Please provide separate information for commercial aquaculture and the ornamental fish trade. You can use a table like the one below:

Species (life cycle stage)	Country of destination	Volume (Units)	Value (US\$)	Date Covered

- 1.12 If **yes**, please describe any associated aquatic animal health certification that you provide to the importing country, including the name and contact details of the government agency/ies that provides this certification:

- 1.13 If **yes**, is certification done:

- (a) for **freedom from specified pathogens** using the methods outlined in the OIE aquatic animal disease diagnostics manual (http://www.oie.int/eng/normes/en_amanual.htm?e1d10):

Yes No

- (b) to whatever **standards the importing country requires**:

Yes No

- (c) to other standards based on general appearance of health (e.g. by visual inspection) or using testing protocols devised by agencies within your country

Yes No

- 1.14 Are live aquatic animals **imported** to your country from other countries?

Yes No

- 1.15 If **yes**, please briefly list the principal species imported, their life cycle stage(s), the countries of origin, volumes (please indicate clearly as e.g. kgs., number of live animals, etc.), and estimated values (please indicate in US\$). Please provide separate information for commercial aquaculture and the ornamental fish trade. You can use a table like the one below:

Species (life cycle stage)	Country of origin	Volume (Units)	Value (US\$)	Date covered

- 1.16 If **yes**, describe any associated aquatic animal health certification that you require to be provided by the exporting country.
- 1.17 If **yes**, describe any other official controls or risk management measures to which imported aquatic animals or aquatic animal products are subject (e.g. veterinary inspection at the port of entry, quarantine, or end-use controls such as prohibitions on the release of live aquatic animals into natural waters):
- 1.18 Is there expertise in your country for **Import Risk Analysis** (IRA) for aquatic animal pathogens?
- () Yes () No
- 1.19 If **yes**, provide contact details of the agency/ies with this expertise and provide examples (and where applicable, citations for published documents) of the import risk analyses that have been undertaken:
- 1.20 Is evaluation of risks for aquatic animal **pathogens linked with evaluation of other risks** (e.g. ecological, pest, invasive alien species, genetic risks, food safety)?
- () Yes () No
- 1.21 If **yes**, briefly describe how is this accomplished (e.g. by interagency committee)

SECTION 2. Control of domestic movements of live aquatic animals and other domestic activities that may spread pathogens

2.1 Does your country have any **regulations controlling the in-country movement** of live aquatic organisms?

Yes No

2.2 If **yes**, briefly describe these controls, including the name and contact details of the responsible agency/ies and the legislation that provides authority for this control:

2.3 Does your country have any regulations **pertaining waste disposal from inland/seafood processing** plants in relation to preventing the spread of aquatic animal pathogens?

Yes No

2.4 If **yes**, briefly describe these controls, including the name and contact details of the responsible agency/ies and the legislation that provides authority for this control:

SECTION 3. Policy and planning

3.1 Has an agency or agencies been designated as responsible for national aquatic animal health policy and planning for your country?

Yes No

3.2. If **yes**, indicate agency(ies) or department(s) and please indicate their responsibilities.

Yes No

3.3 Has official policy been expressed in a **National Aquatic Animal Health Plan**, strategy, legislation or other document?

Yes No

3.4 If **yes**, provide citation for document:

3.5 If **no**, briefly describe how issues impacting national aquatic animal health are currently being handled:

3.6 Do **subnational entities** (state, provincial, local government, private sector) play a role in setting national aquatic animal health policy?

Yes No

3.7. If **yes**, briefly describe their role(s):

3.8 Is current policy for aquatic animal health:

(a) **adequate for preventing the entry and spread** of exotic aquatic animal pathogens?

Yes No

(b) **adequate for controlling serious diseases** within country?

Yes No

(c) **effectively implemented**?

Yes No

3.9 Which of the following areas are **addressed in national policy**?

national diagnostics services:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
risk analysis:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
farm-level treatment and prevention:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
emergency preparedness and disease control:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
manpower requirements:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
training requirements:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
infrastructural requirements:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
financial requirements and planning:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
international treaties, memberships and linkages:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
communication (interagency, stakeholder):	<input type="checkbox"/> Yes	<input type="checkbox"/> No

3.10 What are the **current priorities for your country** with regard to national aquatic animal health policy (list in order of importance)?

SECTION 4. Legislation

4.1 Is there **specific legislation** in place dealing with aquatic animal health?

Yes No

4.2. Please, give a name of legislation related with aquatic animal health if such legislation/sublegislation exist as separate act.

4.3 If **yes**, indicate if aquatic animal health legislation is:

By separate act or regulation: Yes No

As part of broader veterinary, aquaculture, environmental protection or conservation legislation or regulation: Yes No

- 6.4 If **yes**, please provide contact information:
- 6.5 Are any laboratories in your country accredited as **international or national reference centers** for aquatic animal disease diagnosis?
 Yes No
- 6.6 If **yes**, please indicate laboratory(ies), accrediting body and type of accreditation:
- 6.7 Does your country's government and private aquaculture sector have access to other public or private-sector laboratory-based disease diagnostic services?
 Yes No
- 6.8 If **yes**, briefly describe this service/s, including the name and contact details of the responsible institutes/companies and the range of services available, including:
- Parasitology
 - Histopathology
 - General bacteriology/mycology
 - General virology
 - Electron microscopy
 - Tissue culture
 - Molecular diagnostics (e.g. PCR)
 - Immunoassay (e.g. ELISA)
 - Water quality analysis
 - Chemotherapy
 - Health certification
 - Facility inspection
 - Other services??
- 6.9 Is there a **national pathogen list** for aquatic animal diseases?
 Yes No
- 6.10 If **yes**, list the criteria for inclusion of a pathogen in the national list and give those aquatic animal diseases/pathogens that are listed:

SECTION 7. Emergency preparedness/contingency planning

- 7.1 Does your country have any **contingency or emergency response plans** for containment or eradication of serious aquatic animal diseases?
 Yes No

- 7.2 If **yes**, briefly describe these plans, including the name and contact details of the responsible agency/ies and any legislation that supports emergency response activity:
- 7.3 If **no**, briefly describe any emergency response plans for terrestrial animal diseases or terrestrial plant pests or invasive pest species in your country, including the name and contact details of the responsible agency/ies and any legislation that supports emergency response activity:

SECTION 8. Extension services

- 8.1 Does your country have any **extension services** that support the prevention of aquatic animal diseases in aquaculture?
- () Yes () No
- 8.2 If **yes**, briefly describe this service, including the name and contact details of the responsible agency/ies, the number of staff involved and specific areas of involvement:
- 8.3. If **no**, indicate what agency, if any, is mandated to fulfill this function and provide contact details:

SECTION 9. Compliance/enforcement

- 9.1 Does your country have any compliance services that monitors and enforces:
- (a) **international trade in live aquatic animals** (importations and exports), including aquatic animal health regulations?
- () Yes () No
- 9.2 If **yes**, briefly describe this service, including the name and contact details of the responsible agency/ies, the number of staff involved and the legislation that supports compliance activity:
- 9.3 Does your country have any compliance services that monitors and enforces:
- (b) **domestic movements** of live aquatic animals, including aquatic animal health regulations?
- () Yes () No
- 9.4 If **yes**, briefly describe this service, including the name and contact details of the responsible agency/ies, the number of staff involved and the legislation that supports compliance activity:

9.5 Does your country have any compliance services that monitors and enforces:

(c) **regulations related to disease prevention**, management and control in aquaculture facilities?

Yes

No

9.6 If **yes**, briefly describe this service, including the name and contact details of the responsible agency/ies, the number of staff involved and the legislation that supports compliance activity:

SECTION 10. Research

10.1 Does your country have **any research activity** that includes aquatic animal health in its scope?

Yes

No

10.2 If **yes**, briefly describe this research, including the name and contact details of the responsible institute/s, the number of staff and students involved and specific areas of involvement:

SECTION 11. Training

11.1 Does your country have any formal **post-graduate training** programmes (M.Sc. or Ph.D.) in areas related to aquatic animal health?

Yes

No

11.2 If **yes**, briefly describe these programmes, including the name and contact details of the responsible institute/s, the number of staff and students involved and specific areas of involvement:

11.3 Does your country have any **formal non-degree training** programmes (short courses, work-study programmes etc.) in areas related to aquatic animal health?

Yes

No

11.4 If **yes**, briefly describe these programmes, including the name and contact details of the responsible institute/s, the number of staff and students involved and specific areas of involvement:

SECTION 12. Expertise

Summarize the estimated total numbers of individuals in the country with particular levels of tertiary qualifications in each of the stated fields related to aquatic animal health – only those actively employed in a capacity with direct relevance to the field of expertise should be included:

Field of Expertise in Aquatic Animal Health	Level of Qualification				
	Doctorate	Masters degree	Veterinary degree	Bachelors degree	Other (specify)
Parasitology (experimental)					
Parasitology (taxonomy/systematics)					
Virology					
Bacteriology					
Mycology					
Epidemiology					
Histopathology					
Toxicology/water quality					
Molecular diagnostics (e.g. PCR, ELISA)					
Electron microscopy					
Aquatic biosecurity (e.g. risk analysis)					
Fish medicine/Pharmacology					
Aquatic animal health information systems					
Other (specify): physiology					

SECTION 13. Infrastructure

13.1 Summarize the available **infrastructure dedicated solely to aquatic animal health**:

- (a) Laboratories (type):
- (b) Office space :
- (c) Other: (e.g., aquaculture ponds, tank rooms) :

13.2 Summarize the available infrastructure available for aquatic animal health activities but **shared with other groups**:

- (a) Laboratories (type):
- (b) Office space:
- (c) Other: (e.g., aquaculture ponds, tank rooms, electron microscope etc.)

- (e) use of antibiotics and other chemotherapeutants for disease prevention and/or disease treatment:
- (f) any other serious challenges related to aquatic animal health that your country is facing or is likely to face in the next 5 years:

16.2 List the **major constraints** to implementing an effective aquatic animal health programme for your country, in order of importance:

SECTION 17. Additional information

17.1 Provide any additional information about your country's capacities or capabilities with respect to managing aquatic biosecurity that is not mentioned in the responses to the above questions :

17.2 Provide additional information on **aquaculture trends, resources and production data**:

- length and tradition of aquaculture;
- production systems and species;
- total production, based on latest available statistics, with a breakdown by main species and by regions;
- breakdown of production (e.g., for consumption, export, stocking, etc.);
- water resources used for aquaculture (resource availability by water type – fresh, coastal/brackish, etc.; area utilised/unutilised; production areas used for finfish, molluscs, crustaceans);
- number and sizes of aquaculture farms;
- processing plants for aquaculture products.

List of persons completing the survey questionnaire

BOSNIA AND HERZEGOVINA

Veterinary Office of Bosnia and Herzegovina
Radićeva 8/I, 71000 Sarajevo
Tel.: +387 565 700
Facsimile: +387 33 565 725

CROATIA

Ivica Sućec, DVM

Expert Associate
Ministry of Agriculture, Fisheries and Rural
Development (MAFRD),
Veterinary Directorate
Miramarska 24, 10000 Zagreb
Tel.: +385 1 610 9594,
+385 1 610 9650
Fax: + 385 1 610 9207
E-mail: ivica.sucec@mps.hr

Dr. Ivana Lohman, DVM

Head Of the Unit
Ministry of Agriculture, Fisheries and Rural
Development (MAFRD),
Veterinary Directorate
Miramarska 24, 10000 Zagreb
Tel.: +385 1 610 9594,
+385 1 610 9650
Fax: + 385 1 610 9207
E-mail: ivana.lohman@mps.hr

THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

Olivera Karamanova Dimovska, DVM

Assistant for Border Veterinary Inspection
Sector for Border Veterinary Inspection
Veterinary Directorate
Ministry of Agriculture, Forestry and Water
Economy
Treta Makedonska Brigad bb, 1000 Skopje
Mob.: +389 75 463 309
E-mail: okaramanova@veterina.gov.mk

MONTENEGRO

Ivan Popovic, DVM

Director
Veterinary Administration
Bul. Sv. Petra Cetinjskog br. 9
81000 Podgorica
Tel.: +382 20 201 945
Fax: +382 20 201 946
E-mail: veterinarska.uprava@gov.me

SERBIA

Nebojša Jovanović

Independant Adviser
Uprava za veterinu, Ministarstvo
poljoprivrede, šumarstva i vodoprivred
Omladinskih brigada 1,
11070 Novi Beograd
Tel.: +381113196011
Fax: +381112602320
E-mail: nebojsa.jovanovic@minpolj.gov.rs

Identification of competent authorities for various aspects of aquatic animal health

BOSNIA AND HERZEGOVINA

Aquatic animal health activity	Officially mandated agency	Mandate/authority
Development of policy and legislation for AA biosecurity (e.g. national strategic planning and programme development, decisions on risk analyses, emergency preparedness, planning, negotiation of export protocols, etc.)	Veterinary Office of BiH in collaboration with the entity competent authorities (see section 3, point 3.2.)	See section 3, point 3.2.
Implementation of national/state AAH policy and regulations with regard to export and import of AA commodities (border inspection, quarantine, assessment of foreign Competent Authorities, etc.)	<ol style="list-style-type: none"> 1. Veterinary Office of BiH 2. Entity Ministries of Agriculture (including BD) 3. Entity Veterinary Inspectorates (including BD) 4. Cantonal Veterinary Inspection 5. Municipality Veterinary Inspection 	<ol style="list-style-type: none"> 1. Border veterinary inspection 2. Enforcement of national legislation 3. Enforcement of national legislation 4. Enforcement of national legislation 5. Enforcement of national legislation
Enactment of AAH legislation, regulations, orders, directives, etc. Conduct of risk analyses for aquatic animal commodities Monitoring, surveillance and reporting of aquatic animal diseases	<ol style="list-style-type: none"> 1. Veterinary Office of BiH 2. Entity Ministries of Agriculture (including BD) 3. Entity Veterinary Inspectorates (including BD) 4. National Reference Laboratory 	See section 3, point 3.2.
Implementation of national/state emergency response plans	<ol style="list-style-type: none"> 1. Veterinary Office of BiH 2. Entity Ministries of Agriculture (including BD) 3. Veterinary Inspection from all levels (including BD) 4. Laboratories 5. Veterinary organizations 	See section 3, point 3.2.
Monitoring and control of pharmaceutical residues in cultured and wild AA	<ol style="list-style-type: none"> 1. Veterinary Office of BiH 2. Entity Ministries of Agriculture (including BD) 3. Veterinary Inspection from all levels (including BD) 	See section 3, point 3.2.
Internationally/nationally accredited laboratories for diagnosis of OIE-listed AA diseases (and other serious diseases)		
Issuance of International Health Certificates	<ol style="list-style-type: none"> 1. Veterinary Office of BIH 2. Entity Veterinary Inspection from all levels 	See section 1, point 1.12.

	(including BD)	
--	----------------	--

CROATIA

Aquatic animal health activity	Officially mandated agency	Mandate/authority
AAH with regard to export and import matters	Ministry of Agriculture, Fisheries and Rural Development (MAFRD)	Veterinary Directorate (VD)
Development of biosecurity policies, for example conduct of risk analysis, negotiation of export protocols for animal health and for assessing foreign Competent Authorities	MAFRD	VD, Veterinary Inspection Directorate (VID)
Control of AA diseases and pharmaceutical product residues	MAFRD, VD,VID	Croatian Veterinary Institute (CVI)
Inspection, surveillance and reporting	MAFRD	VID, VD
Health certificates and quarantine, laboratory testing	MAFRD, CVI	VID – Border Inspection
Diagnostics	CVI	
Research	Veterinary Faculty Zagreb	
Extension		
Training	MAFRD	
Education	Veterinary Faculty Zagreb, VD, CVI, VID	
Others		

THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

Responsibility	Officially mandated agency	Mandate/authority
AAH with regard to export and import matters	Ministry of Agriculture, Forestry and Water Economy (MAFWE)	MAFWE – Veterinary Directorate
Development of biosecurity policies, for example conduct of risk analysis, negotiation of export protocols for animal health and for assessing foreign Competent Authorities	MAFWE	MAFWE – Veterinary Directorate
Control of AA diseases and pharmaceutical product residues	MAFWE – Veterinary Directorate	Faculty of Veterinary Medicine in Skopje
Inspection, Surveillance and Reporting	MAFWE	MAFWE – Veterinary Directorate
Health Certificates and Quarantine, Laboratory testing	MAFWE – Veterinary Directorate	Faculty of Veterinary Medicine in Skopje
Diagnostics	MAFWE – Veterinary Directorate	Faculty of Veterinary Medicine in Skopje
Research	Ministry of Education and Science, University “Ss. Cyril and Methodius”	Faculty of Veterinary Medicine in Skopje
Extension		
Training		
Education	Ministry of Education and Science, University “Ss. Cyril and Methodius”	Faculty of Veterinary Medicine in Skopje
Others		

MONTENEGRO

Responsibility	Officially mandated agency	Mandate/authority
Aquatic animal health with regard to export and import matters	Veterinary Administration	Veterinary Law Food safety Law
Development of biosecurity policies, for example conduct of risk analysis, negotiation of export protocols for animal health and for assessing foreign Competent Authorities	Veterinary Administration	Veterinary Law Food safety Law
Control of aquatic animal diseases and pharmaceutical product residues	Veterinary Administration	Veterinary Law Food safety Law
Inspection, surveillance and reporting	Veterinary Administration	Veterinary Law Food safety Law
Health certificates and quarantine, laboratory testing	Veterinary Administration	Veterinary Law Food safety Law
Diagnostics	Veterinary Administration	Veterinary Law Food safety Law
Research		
Extension		
Training	Veterinary Administration	
Education		
Others		

SERBIA

Responsibility	Officially mandated agency	Mandate/authority
Development of policies and legislation AA biosecurity (e.g. national strategic planning and programme development, decisions on risk analyses to be conducted, emergency preparedness planning, negotiation of export protocols, etc.)	Veterinary Directorate	Law on Ministries Law on Veterinary Matters (OG RS No 91/05)
Implementation of national/state AAH policy and regulations with regard to export and import of aquatic animal commodities (border inspection, quarantine, assessment of foreign Competent Authorities, etc.)	Institute of Meat Hygiene and Technology, Belgrade	Law on Veterinary Matters (OG RS No 91/05)
Enactment AAH legislation, regulations, orders, directives, etc.	Veterinary Directorate – Veterinary Inspection	Law on Veterinary Matters (OG RS No 91/05)
Conduct of risk analyses for aquatic animal commodities	Institute of Meat Hygiene and Technology, Belgrade	
Monitoring, surveillance and reporting of AA diseases		
Implementation of national/state emergency response plans		
Monitoring and control of pharmaceutical residues in cultured and wild AA	Institute of Meat Hygiene and Technology, Belgrade	
Internationally/nationally accredited laboratories for diagnosis of OIE-AA diseases (and other serious diseases)	Scientific Veterinary Institute, Belgrade	
Issuance of International Health Certificates	Veterinary Directorate	

List of publications related to aquatic animal health in The former Yugoslav Republic of Macedonia

Articles

- Boshnakovski, J., Nechev, T., Apostolski, K. and Hristovski, M.** 1991. Appearance of eel diseases in Ohrid Lake, EIFAC Working Party on Eels, Dublin, 20–25 May, 1991.
- Cvetkovic A., Hristovski M., Mrenoski S. and Cvetkovic I.** 2007. Survey of *Saprolegnia* sp. in cage cultured carp in Tikves Lake in 2005 and 2006. *The former Yugoslav Republic of Macedonian Veterinary Review*, 30(1): 29–32.
- Hristovski, M. and Cvetkovic, A.** 2005. Reasons and consequences of stress in extensive breeding of warmwater fish. *The former Yugoslav Republic of Macedonian Fishing Magazine* No. 8–9.
- Hristovski, M. Cvetkovic, A. and. Stojanovski S.** 2007. Survey of diseases affecting cage cultured carp in Tikves Lake in 2005 and 2006. *III International Conference Fishery, Proceedings*, ISBN 978–86–7834–024–6, Belgrade, Serbia, 1–3 Feb, 2007.
- Hristovski, N., Stojanovski, S., Cakic, P. and Hristovski, M.** 2001. Parazitofauna of the common carp (*Cyprinus Carpio* Linnaeus, 1758) from Prespa Lake, The former Yugoslav Republic of Macedonia, National Center for Agrarian Sciences, *Journal of Animal Science*, 38(5).
- Hristovski, N., Stojanovski, S., Cakic, P., Kulisic, Z. and Hristovski, M.** 2001. Tissue helminths at the fishes in Ohrid. Scientific sobir for tissue parasites in humans and animals. *Zbornik na trudovi. SANU. Novi Sad*, pp. 50–65. (In Serbian).
- Hristovski, N., Stojanovski, S., Cirkovic, M. and Hristovski, M.** 2001. Parasite fauna of carp (*Cyprinus carpio*) from the pond Dzabeni, in Pelagonia, The former Yugoslav Republic of Macedonia. *Contemporary Agriculture*, 50(3–4): 247–250.
- Hristovski, N., Stojanovski, S. and Hristovski, M.** 2000. The parasite fauna of the Ohrid moranec (*Pachychilon pictus* Heckel et Kner, 1858) from Lake Ohrid. VII Congress of Croatian Biologists. *Proceedings of Abstracts. Zagreb, Croatia*, pp. 333–334.
- Hristovski, N., Stojanovski, S., Kulisic, Z., Cakic, P. and Hristovski, M.** 1999. Parasite fauna of the Ohrid Belvica (*Acantholingua ohridana* Hadzisce, 1961) from Lake Ohrid (The former Yugoslav Republic of Macedonia).. *Acta Veterinaria*, 49(1): 91–104.
- Hristovski, N., Stojanovski, S., Spirkovski, Z., Cakic, P., Hristovski, M., Kuli, Z. and Baker, R.A.** 2002. Helminthofauna of the Ohrid salmonid fish (*Salmo letnica* Karaman, 1924) from Ohrid Lake. *Hidrobiological, Ohrid. Zbornik Radova* 34(1).
- Hristovski, N., Stojanovski, S., Spirkovski, Z., Hristovski, M., Cakic, P., Baker, R.A. and Kostovski G.** 1999. Parasite fauna of the salmonids from the Lake Ohrid (The former Yugoslav Republic of Macedonia). VIII European Ecological Congress, Porto Caras, Greece, p. 175.
- Markic, Z., Hristovski, M., Pejkoski, C., Mrenoski, Sé and Davceva O.** 1999. First isolation and identification of *Yersinia ruckeri* in Republic of The former Yugoslav Republic of Macedonia, *Book of Abstracts, Microbiologica Balcanica '99, Plovdiv, Bulgaria*, 5–9 October, 1999.
- Stojanovski, S., Hristovski, N., Hristovski, M. and Cakic, P.** 2000. Parazitofauna of black mrena (*Barbus meridionalis petenyi* Heckel, 1847) in Ohrid Lake. IV Jugoslovenski Simpozijum "Ribarstvo Jugoslavije". *Zbornik na trudovi. Vrhac, SR Jugoslavija*, pp. 127–135. (In Serbian).
- Stojanovski, S., Kulishich, Z., Cakich, P., Hristovski, N. and Hristovski, M.** 1998. Parazitofauna of the Ohrid trout (*Salmo letnica* Karaman, 1924) from lake Ohrid (The former Yugoslav Republic of Macedonia), *Acta Veterinaria*, 48(5–6): 357–367.

Books

- Biology, breeding and diseases of fish. – National forum for animal protection of The former Yugoslav Republic of Macedonia. Skopje. 2005
- Marketing and Management in Aquaculture, – National forum for animal protection of The former Yugoslav Republic of Macedonia. Skopje. 2004.

M.Sc. and Ph.D. theses

- Cvetkovik, A.** 2009. Autogenous vaccination for control of yersiniosis in salmonid aquaculture in The former Yugoslav Republic of Macedonia. Master of Science Thesis. Faculty of Veterinary Medicine. Skopje.
- Stojanovski, S.** 2003. Fauna of monogenean trematodes – parasites of fishes from natural lakes in The former Yugoslav Republic of Macedonia, MSc. Ph.D. Thesis, Faculty of Veterinary Medicine Skopje.

APPENDIX V

Draft regional Technical Cooperation Programme (TCP) proposal: Assistance to Western Balkan Countries for improving compliance to international standards on aquatic animal health

BACKGROUND AND JUSTIFICATION

This regional TCP Proposal “Assistance to Western Balkan Countries for Improving Compliance to International Standards on Aquatic Animal Health” is the result of a lengthy consultative and consensus-building process among countries of the Western Balkan Region (Bosnia and Herzegovina (BiH), Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia) that was initiated under the TCP/BiH/3101 project “Strengthening Capacity on Aquaculture Health Management in Bosnia and Herzegovina”. Project TCP/BiH/3101 was officially approved on 14 June 2006 with the development objective of increasing the effectiveness and efficiency of the State Veterinary Office (SVO) of BiH in aquatic animal health management. This objective supports sustainable and healthy aquaculture production, enabling the country to improve the value and efficiency of aquaculture production through the implementation of international animal health and food safety standards, especially those of its trading partners in Europe and neighboring countries.

One of the specific objectives of the project was to disseminate the project outcomes to neighboring trading partners in order to promote future cooperation in aquaculture and aquatic animal health management in the region. As part of the above TCP, the FAO Western Balkan Regional Seminar/Workshop on Aquatic Animal Health was undertaken from 19 to 21 May 2008 in Sarajevo, BiH. Among the goals of the regional workshop were to “(iii) identify opportunities for seeking solutions to common problems related to pathogen issues affecting regional trade between Balkan States and key European Union trading partners; and (iv) discuss and possibly formulate a programme and proposal for regional cooperation (TCP or other project) in such areas as networking and information sharing, harmonization of diagnostics standards, regional disease reporting, sharing of technical expertise, etc.”

As an outcome of the above regional workshop, a TCP facility, TCP/RER/3206 “Assistance to Western Balkan Countries for Improving Compliance with International Standards on Aquatic Animal Health”, aimed at preparing a further regional proposal to FAO was approved in early 2009. The process of developing this regional TCP consisted of the following activities, which were undertaken to assess the status of national planning, policy and capacity for aquatic animal health in the five participating countries and identify the constraints to achieving national goals:

- i. A regional survey of aquatic animal health capacity and performance was conducted (from May to August 2009) involving five countries in the Western Balkan region (i.e. BiH, Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia).
- ii. Regional field assessment was undertaken by two FAO teams (May to August 2009) who visited the central veterinary services, main diagnostics laboratories and selected aquaculture facilities in each country to assess needs related to national programmes for aquatic animal health and to confirm survey findings.
- iii. In August 2009, the survey analysis was completed and a draft framework for a regional TCP proposal developed.
- iv. From 7 to 9 September, 2009, an FAO Regional Proposal Development Workshop “Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health” was convened in Zagreb, Croatia to deliberate and achieve consensus on the essential components of the draft regional TCP proposal, including the implementation plan, time-line and responsibilities. During the workshop, the results of the Western Balkan Regional Aquatic Animal Health Capacity and Performance Survey and the field-based needs assessments were presented, and the draft framework for a regional proposal was outlined by the FAO team and discussed by the

workshop participants. Following incorporation of the recommendations of the workshop participants, the revised draft proposal was approved for submission to FAO for consideration.

The present regional TCP proposal is the outcome of completion of these activities.

OBJECTIVES OF THE ASSISTANCE

The objectives of this Regional TCP Proposal address and build upon the technical areas identified during the 2008 regional workshop held in Sarajevo as having highest priority to assist all participating countries in developing capacity to implement international standards, i.e.: (i) risk analysis; (ii) disease surveillance, monitoring and reporting; (iii) disease diagnosis (including regional reference laboratories); and (iv) information and networking.

The project's overall objective is to improve participating country compliance with international health standards for aquatic animals by addressing key areas identified by the regional needs-assessment process so that countries are better able to maintain and improve national aquatic animal health status, harmonize standards regionally, and better comply with the health standard requirements of regional and international trading partners.

The specific objectives of the project are to:

- **build regional aquatic animal health capacity** (via workshops and training) on specific themes (legislation, risk analysis, surveillance (aquatic epidemiology), diagnostics, emergency preparedness/contingency planning, aquaculture development and promotion);
- **conduct a regional review and assessment of national legislation** to harmonize with respect to compliance with international aquatic animal health standards (World Trade Organization-Sanitary and Phytosanitary Agreement (SPS agreement), World Organisation for Animal Health (OIE) Aquatic Animal Health Code, European Union (EU) legislation);
- **design and implement a regional surveillance programme** for aquatic animal diseases; and
- **promote national, regional and international communication mechanisms and networking** systems for aquaculture development.

The completion of these key objectives will:

- Establish as a first priority, a project-based regional communication and networking system through a regional West Balkans Aquatic Animal Health (WBAAH) website.
- Improve understanding of international requirements for establishing and maintaining national surveillance systems for key aquatic animal diseases so that such systems can be established and/or improved via training.
- Improve or establish national monitoring and reporting systems for aquatic animal diseases through training of national staff and the establishment of regionally harmonized systems for registration of aquaculture production facilities, and a regional disease information database; and structure and conduct a regional disease monitoring programme for three or diseases important to improving regional aquatic animal health, defining disease-free zones within the region or providing data essential to proving disease absence.
- Improve national capacities to diagnose serious viral diseases of finfish and (where appropriate) parasitic diseases of molluscs to the standards outlined in the *OIE Manual for Aquatic Disease Diagnosis*; and establish mechanisms for laboratory networking among participating countries, including designation of a regional reference laboratory(ies).
- Improve national capacity and understanding of the application of risk analysis for the international and domestic movement of live aquatic animals through short-term training.
- Improve communication among policy-makers, diagnosticians, field staff and the private sector in each country by conducting a series of national workshops addressing areas of national priority; conducting a final project workshop involving senior national policy-makers and key representatives from the private sector and international and regional agencies.

- Build technical capacity to accomplish the above via a series of regional and national workshops, targeted short-term training and provision of a limited amount of essential equipment and materials.

PROJECT OUTPUTS (RESULTS)

The project will thus aim to achieve the following major outputs:

- 1. Regional workshops** – Four regional technical workshops and one regional aquaculture development workshop will be held during the project. Each workshop will deal with a key regional issue of importance to achieving project goals, with one workshop being organized in each of the participating countries.
- 2. National workshops** – Each of the five participating countries will organize a single national workshop to discuss topics of national importance. The workshops will bring together public and private-sector stakeholders, including representatives from national, state and local veterinary agencies, diagnosticians, representatives of the aquaculture sector and other key players, and will also serve as a forum for disseminating progress in implementation of the regional TCP, as appropriate.
- 3. Project terminal workshop** – A Project terminal workshop will be held in Sarajevo, BiH to review project accomplishments and identify future regional goals and possible mechanisms for achieving them. The workshop will include participation by national Ministers of Agriculture, Chief Veterinary Officers, other senior policy-makers, and representatives of relevant international agencies, the aquaculture industry and other key stakeholders.
- 4. Regional legislative review** – Through the participation of the FAO Legal Service, a review of national legislation relevant to aquatic animal health will be conducted in each of the five participating countries, leading to country-specific recommendations for harmonization with international standards. The review will be conducted prior to the regional workshop on risk analysis and legislation so that the results can be presented and discussed during the workshop.
- 5. Regional disease surveillance system and survey** – The project will assist countries in establishing a system of record keeping for aquaculture farms (including a farm registration system, where desired) and will improve relevant expertise in database management and data analysis and presentation. Standardized methodology will be developed and implemented to conduct a regional disease survey for a minimum of three regionally important diseases of finfish [e.g. viral haemorrhagic septicaemia (VHS), infectious pancreatic necrosis (IPN), koi herpesvirus (KHV), viral encephalopathy and retinopathy (VER)].
- 6. West Balkan aquatic animal health (WBAAH) Web site** – The project will assist in establishing a web site and networking system for the region to provide current information on disease status, current aquatic animal health activities, contacts for key personnel and experts, hosting of discussion group(s), etc., to be hosted by one of the region's lead agencies or laboratories. The web site will serve as a focal center for project implementation.
- 7. Short-term training** – A short-term training programme will be developed to include any regional or international short-term training required to permit participating countries to

accomplish the above objectives. Training will be accomplished by TCCT¹ or short-term work/study assignment of staff to institutes or laboratories having the specific expertise that can be transferred.

WORK PLAN

The project's work plan is based on the following core principles:

- **Regional cooperation:** each participating country's national interests will be promoted by cooperation among all participating countries.
- **Team effort:** each activity will be jointly led by a team (FAO, regional project coordinator - RPC, national focal points - NFP, regional/international experts), regional participants and other interested partners (e.g. OIE, EU, donors).
- **Transparency:** a project-based communications portal, the Western Balkan Aquatic Animal Health (WBAAH) website, will provide information in both English and regional languages on project activities and assure transparency to all stakeholders
- **Continuity:** continuity will be achieved by forming a core group of regional aquatic animal health experts; each participating country will have four participants to each activity, two of whom will be participating in all activities.

Work plan objectives will be accomplished by completion of the following activities:

Activity 1: Establish and maintain the West Balkan Aquatic Animal Health (WBAAH) – The project will assist in establishing a website and networking system for the region to provide current information on disease status, current activities, contacts for key personnel and experts, hosting of discussion group(s), etc., to be hosted by one of the region's lead agencies or laboratories. The Web site will serve as a coordinating centre for project implementation.

Activity 2: Conduct a regional legislative review – Through the participation of FAO Legal Services, a review of national legislation relevant to aquatic animal health will be conducted, leading to country-specific recommendations for harmonization with international standards. The review will be conducted prior to the regional workshop on risk analysis and legislation so that the results can be presented during the workshop.

Activity 3: Establish a regional disease surveillance programme – The project will assist countries in establishing a system of record keeping for aquaculture farms (including a farm registration system, where desired) and will improve relevant expertise in database management and data analysis and presentation. Standardized methodology will be developed and implemented to conduct a regional disease survey for a minimum of three regionally important diseases of finfish [e.g. viral haemorrhagic septicaemia (VHS), infectious pancreatic necrosis (IPN), koi herpesvirus (KHV), viral encephalopathy and retinopathy (VER)].

Activity 4: Conduct a series of regional capacity-building workshops – Four regional technical workshops will be held during the project, each workshop will deal with a key regional technical issue of importance to achieving project goals, with one workshop being organized in each of the participating countries. A fifth workshop will advance regional aquaculture development via seeking ways to promote regional aquaculture development and the marketing of regional aquaculture products. The workshops will bring together key international regional and national players, including

¹ Technical Cooperation among Countries in Transition.

FAO staff, the Regional Project Coordinator (RPC), international and national consultants, participants from relevant international and regional agencies and donor organizations, national focal points, other national project participants, key national policy-makers, and representatives of private-sector aquaculture and fish processor groups, as appropriate. The general topics of the workshops and the agreed upon host countries will be:

- Improving national and regional disease surveillance, monitoring and reporting systems (Serbia)
- Improving capacity for diagnosis of diseases of fish and molluscs (BiH)
- Improving capacity for risk analysis for movements of live aquatic animals/harmonizing national legislation with international standards (Croatia)
- Improving national and regional contingency planning and emergency preparedness (The former Yugoslav Republic of Macedonia)
- Improving methods for regional aquaculture development and promotion (Montenegro)

Activity 5: Conduct a series of national workshops to promote information exchange and improve communication between key aquaculture stakeholders – Each of the five participating countries will organize a single national workshop to discuss topics of national importance. The workshops will bring together public and private-sector stakeholders, including representatives from national, state and local veterinary agencies, diagnosticians, representatives of the aquaculture sector and other key players, as appropriate.

Activity 6: Conduct a final project workshop and review – A final project workshop will be held in Sarajevo, BiH to review project accomplishments and identify future regional goals and possible mechanisms for achieving them. The meeting will include participation by national Ministers of Agriculture, Chief Veterinary Officers, other senior policy-makers, and representatives of relevant international agencies, the aquaculture industry and other key stakeholders.

Activity 7: Conduct short-term training of key national staff – A short-term training programme will developed to include any regional or international short-term training required to permit participating countries to accomplish the above objectives – training would be accomplished by TCCT or short-term work/study assignment of staff to institutes or laboratories having the specific expertise that can be transferred.

Activity 8: Provide key equipment and materials – A limited quantity of equipment and expendibles will be provided to participating countries to allow them to complete the above activities.

A brief description of the proposed regional and national workshops and short-term training can be found in Annex 1.

Project management: Project management will be accomplished by a Regional Programme Project Team comprised of the FAO Lead Technical Officer (LTO) and other backstopping officers, a Regional Project Coordinator (RPC), and national Focal Points (NFPs) on aquatic animal health (1 per country). Specific project activities will involve National Consultants (NC), Regional TCCT Expert(s), International Consultant(s) and partner experts (Partner Institution Expert), as appropriate.

Expertise not available within the region will be provided by two international consultants and the FAO backstopping technical officers. Short-term training in international laboratories will only take place should necessary facilities or expertise not be present within the region. This approach will

reduce language-related difficulties and will allow for most activities to be accomplished without the need for simultaneous translation.

In this work plan, the numbers given below correspond to the associated personnel:

1. One regional project coordinator (RPC)
2. Six national consultants:
 - National Consultant 1 (Legislation)
 - National Consultant 2 (Disease surveillance, monitoring and reporting)
 - National Consultant 3 (Diagnostics)
 - National Consultant 4 (Risk analysis)
 - National Consultant 5 (Contingency planning and emergency preparedness)
 - National Consultant 6 (Aquaculture development and promotion)
3. Three TCCT consultants
 - TCCT Consultant 1 (Diagnostics)
 - TCCT Consultant 2 (Aquatic animal health information systems)
 - TCCT Consultant 3 (Epidemiology)
4. Two International Consultants:
 - International Consultant 1 (Disease Surveillance, Monitoring and Reporting; Contingency Planning and Emergency Preparedness)
 - International Consultant 2 (Risk Analysis; Aquaculture Development and Promotion)
5. Four FAO Technical Backstopping Officers
 - Senior Aquaculture Officer (Aquaculture) from the Aquaculture Service (FIRA)
 - Aquaculture Officer (Aquatic Animal Health/Biosecurity Management) from the Aquaculture Service (FIRA)
 - Fishery Officer from the Subregional Office for Central and Eastern Europe (SEUM)
 - Legal Officer from the FAO Development Law Service (LEGN)

The detailed Terms of Reference for each of the personnel can be found in Annexes 2–14.

PROJECT TIMELINE

The proposed regional TCP will be undertaken for 24 months. Details of project timeline can be found in Annex 15.

**Terms of Reference
Workshops and training**

Description of training sessions and workshops:

1) Regional Workshop 1 on Improving National and Regional Disease Surveillance, Monitoring and Reporting Systems

Location of workshop: Serbia

Number of participants: 25–30 (4 participants from each participating country)

Duration of Workshops: 4 days

Objectives: To review the current status of national disease surveillance, monitoring and reporting systems and disease lists; develop a disease surveillance manual using a drainage basin approach, organize a Regional Disease Surveillance Programme, and to plan and implement a Regional Disease Survey for 3 diseases using international standards.

2) Regional Workshop 2 on Improving Capacity for Diagnosis of Disease of Fish and Molluscs

Location of workshop: Sarajevo, BiH

Number of participants: 25–30 (4 participants from each participating country)

Duration of Workshops: 4 days

Objectives: To review the current status of national disease diagnostics in participating countries, standardize diagnostics techniques in support of the Regional Disease Survey and provide targeted diagnostics training to participants.

3) Regional Workshop 3 on Improving Risk Analysis for Movements of Live Aquatic Animals/Harmonizing National Legislation with International Standards

Location of workshop: Croatia

Number of participants: 25–30 (4 participants from each participating country)

Duration of Workshops: 4 days

Objectives: To review the current status of risk analysis for aquatic animals in participating countries and to provide introductory training in risk analysis to participants; to present the results of the Regional Legislative Review and identify regional and national actions required to meet European Union and other international standards with regard to aquatic animal health.

4) Regional Workshop 4 on Improving National and Regional Contingency Planning and Emergency Preparedness

Location of workshop: The former Yugoslav Republic of Macedonia

Number of participants: 25–30 (4 participants from each participating country)

Duration of Workshops: 4 days

Objectives: To review the current status of national contingency planning and emergency preparedness, make recommendations for their improvement and to discuss and agree upon harmonized regional approaches and regional cooperation.

5) Regional Workshop 5 on Improving Methods for Regional Aquaculture Development and Promotion

Location of workshop: Montenegro

Number of participants: 25–30 (4 participants from each participating country)

Duration of Workshops: 4 days

Objectives: To review the current regional directions in aquaculture development and promotion in participating countries and to formulate regional mechanisms and action plans to more effectively promote West Balkan aquaculture products in international markets.

6) Project Terminal Workshop

Location of workshop: Sarajevo, BiH

Number of participants: 40–50

Duration of Workshops: 4 days

Objectives: To disseminate and share results and findings of the project and to exchange information on good aquatic animal health management practices between neighbouring states in order to build consensus and generate better understanding with trading partners on the importance of responsible aquatic animal health management for increasing healthy aquatic production, expanding responsible trade and contributing to poverty alleviation. To seek methods to continue regional coordination and cooperation on initiatives begun by the project.

6) National Workshops (total of 5)

Location of workshops: one workshop within each participating country (BiH, Croatia, The former Yugoslav Republic of Macedonia, Montenegro and Serbia)

Number of participants: 25–30

Duration of each workshops: 4 day

Objectives: To provide information and/or training to national staff and private-sector stakeholders on specific aspects of national aquatic animal health and/or aquaculture development. Precise topics to be determined by individual participating countries.

7) Short-term training

Location of training: Within participating countries, unless facilities and expertise in specific areas do not exist

Number of trainees: TBD

Duration of trainings: TBD

Objectives: To provide specific targeted short-term training to project participants to allow them to undertake the Regional Disease Survey and to improve capacity to meet international standards in aquatic animal health.

**Terms of Reference
Regional Project Coordinator (RPC)**

The Regional Project Coordinator (RPC) will be appointed by FAO for the whole duration of the project to facilitate project implementation and ensure effective liaison and cooperation between the participating countries and the Project Team. In particular he/she will:

1. facilitate the set up of all arrangements for the project implementation, including visas for consultants, workshops, training sessions, missions, translation of documents, purchase of equipment, recruitment of staff, etc;
2. coordinate and monitor the activities of consultants;
3. liaise with country national focal points to ensure effective planning and implementation of national aspects of the project;
4. prepare and update work plans as required;
5. maintain good contacts with other stakeholders in the sector in order to increase their commitment to the project objectives and participation in project activities;
6. facilitate disbursement of payments of contracted services and costs related to the implementation of training activities;
7. prepare bi-monthly progress reports indicating achievements and major problems in project implementation; and
8. perform any other duties to assure successful implementation of the project.

Qualifications:

- several years of experience in coordinating fisheries and aquaculture activities in West Balkans;
- flexibility, ability of overcoming difficulties, maintaining good relationships among the team members;
- liaising in an amicable and effective way with other government, non-government and international organizations; and
- good command of verbal and written English.

Duty station: Home city within a participating country and in-country travels

Terms of Reference
National Consultant 1: aquatic animal health legislation

Under the overall supervision of the Regional Representative for Europe (REUD), the technical supervision of FIRA Lead Technical Unit (LTU) Officer and FIRA Senior Aquaculture Officer, and in close collaboration with the Regional Project Coordinator and the LEGN Legal Officer, national consultant 1 on aquatic animal legislation will assist in the implementation of the regional review of national legislation and the Regional Workshop on Aquatic Animal Health Legislation/Risk Analysis. Specifically, the officer will perform the following duties:

First mission

1. assist the FAO LEGN Legal Officer in the collection and review of all relevant national legislation enacted by the five participating countries pertaining to aquatic animal health;
2. assist the FAO LEGN Legal Officer in the preparation of a report detailing the finding of the review and in drafting recommendations to participating countries regarding the need for revision of existing legislation or the enactment for new legislation; and
3. prepare a comprehensive report containing the above and submit to FAO/FIRA in both hard copy and electronic formats (in Microsoft Word 6).

Second mission

1. participate in Regional Workshop 2 (Legislation component) to present the findings of the Legislation Review;
2. participate in National Workshops, as appropriate; and
3. prepare a comprehensive report containing the above and submit to FAO/FIRA in both hard copy and electronic formats (in Microsoft Word 6).

Qualifications:

- university or related degree in law;
- at least five years of professional experience in law as it relates to aquaculture and aquatic animal health;
- experience with working in a participatory manner; and
- fluency in English and good communication and writing abilities.

Duty station: Home city within a participating country and intra-regional travels.

Duration: Two missions.

Terms of Reference

National consultant 2: disease surveillance, monitoring and reporting

Under the overall supervision of the Regional Representative for Europe (REUD), the technical supervision of FIRA Lead Technical Unit (LTU) Officer and FIRA Senior Aquaculture Officer, the Regional Project Coordinator, and the International Consultant (Disease Surveillance/Contingency Planning), national Consultant 2 will assist in implementing the disease surveillance component of the project. Specifically, the officer will perform the following duties:

First mission

1. assist the International Consultant 1 (surveillance/contingency planning) and the RPC in planning and implementing a West Balkans Regional Aquatic Animal Disease Surveillance System including mechanisms for survey protocols, diagnostic methods, data collection and analysis, and regular reporting; and
2. assist the International Consultant 1 (surveillance/contingency planning) and the RPC in preparing a comprehensive report containing the above and submit to FAO/FIRA in both hard copy and electronic formats (in Microsoft Word 6).

Second Mission

1. Assist the RPC in preparing a mid-term report of survey results;
2. Participate in Regional Workshops 1 (Disease Surveillance) and 2 (Disease Diagnostics) ; and
3. Prepare a comprehensive report containing the above and submit to FAO/FIRA in both hard copy and electronic formats (in Microsoft Word 6).

Third mission

1. assist the RPC in preparing a final report of the regional disease survey; and
2. participate in the Project Terminal Workshop;

Qualifications:

- university or related degree in aquaculture/fisheries, veterinary medicine, food safety and quality;
- at least five years of professional experience in animal epidemiology, information systems, disease databases, surveillance and reporting.
- experience with working in a participatory manner;
- fluency in English, good communication and writing abilities.

Duty station: Home city within a participating country, with intra-regional travels.

Duration: Three missions.

Terms of Reference
National consultant 3: aquatic animal disease diagnostics

Under the overall supervision of the Regional Representative for Europe (REUD), the technical supervision of the FIRA Lead Technical Unit (LTU) Officer, and the Regional Project Coordinator, national consultant 3 on aquatic animal disease diagnostics will assist in implementing the disease diagnostics component of the project. Specifically, the consultant will perform the following duties:

1. assist the International Consultant 1 in establishing the diagnostic components of the Regional Aquatic Animal Disease Surveillance Programme;
2. participate as a resource person in Regional Workshop 1 (Disease Surveillance, Monitoring and Reporting);
3. assist in organizing Regional Workshop 2 on Disease Diagnostics by preparing the report of the workshop;
4. assist FAO by reviewing requests from participating countries for diagnostics equipment, expendables and short-term, training needed to undertake the Regional Disease Survey; and
5. submit a comprehensive report to FAO/FIRA in both hard copy and electronic formats (in Microsoft Word 6).

Qualifications:

- university or related degree in aquatic animal health or veterinary medicine;
- at least five years of professional experience in the diagnosis of aquatic animal diseases, including direct experience with the diagnostics methods specified in the OIE Aquatic Animal Disease Diagnostics Manual;
- experience with working in a participatory manner; and
- fluency in English, good communication and writing abilities.

Duty station: Home city within the region and in-country travels.

Duration: Two missions.

Terms of Reference
National consultant 4: risk analysis

Under the overall supervision of the Regional Representative for Europe (REUD), the technical supervision of FIRA Lead Technical Unit (LTU) Officer and FIRA Senior Aquaculture Officer, and in close collaboration with the Regional Project Coordinator and International Consultant (risk analysis/aquaculture development), Consultant 4 on risk analysis will assist in the implementation of the risk analysis component of the project. Specifically, the consultant will perform the following duties:

1. assist FAO, the RPC and International Consultant 2 in planning and organizing the risk analysis component of Regional Workshop³ and serving as a resource person at the Workshop;
2. participate in as a resource person in risk analysis in National Workshops, as appropriate;
3. assist the FAO, the RPC and international consultant 2 in preparing the risk analysis component of the Workshop report; and
4. Prepare a comprehensive report containing the above and submit to FAO/FIRA in both hard copy and electronic formats (in Microsoft Word 6).

Qualifications:

- university or related degree in aquatic animal health or veterinary medicine;
- experience/familiarity with risk analysis methods as applied to the international movement of live aquatic animals and their products;
- experience with working in a participatory manner; and
- fluency in English, good communication and writing abilities

Duty station: Home country within the region and in-country travels.

Duration: One mission.

Terms of Reference
National consultant 5: contingency planning and emergency preparedness

Under the overall supervision of the Regional Representative for Europe (REUD), the technical supervision of FIRA Lead Technical Unit (LTU) Officer and FIRA Senior Aquaculture Officer, and in close collaboration with the Regional Project Coordinator and international consultant 1 (Disease surveillance/contingency planning) consultant 4 on contingency planning and emergency preparedness will assist in the implementation of the contingency planning component of the project. Specifically, the consultant will perform the following duties:

1. assist FAO, the RPC and International Consultant 1 in planning and organizing the Regional Workshop 4 (Contingency Planning and Emergency Preparedness) and serving as a resource person at the Workshop;
2. participate in as a resource person in contingency planning and emergency preparedness in National Workshops, as appropriate;
3. assist the FAO, the RPC and International Consultant 1 in preparing the Workshop report; and
4. prepare a comprehensive report containing the above and submit to FAO/FIRA in both hard copy and electronic formats (in Microsoft Word 6).

Qualifications:

- university or related degree in aquatic animal health or veterinary medicine;
- five years experience in contingency planning/emergency preparedness for aquatic and/or terrestrial animal disease outbreaks;
- experience with working in a participatory manner; and
- fluency in English, good communication and writing abilities

Duty station: Home country within the region and in-country travels.

Duration: One mission.

Terms of Reference
National consultant 4: aquaculture development and promotion

Under the overall supervision of the Regional Representative for Europe (REUD), the technical supervision of FIRA Senior Aquaculture Officer, and in close collaboration with the Regional Project Coordinator and international consultant (risk analysis/aquaculture development), consultant 6 on aquaculture development and promotion will assist in the implementation of the aquaculture development and promotion component of the project. Specifically, the consultant will perform the following duties:

1. assist FAO, the RPC and International Consultant 2 in planning and organizing the Regional Workshop 5 (Aquaculture Development and Promotion) and serving as a resource person at the Workshop;
2. participate in as a resource person in aquaculture development and promotion in National Workshops, as appropriate; and
3. assist the FAO, the RPC and International Consultant 2 in preparing the Workshop report; and
4. prepare a comprehensive report containing the above and submit to FAO/FIRA in both hard copy and electronic formats (in Microsoft Word 6).

Qualifications:

- university or related degree in a field related to aquaculture development or seafood marketing;
- experience/familiarity the development and promotion of regional aquaculture and with global trends in aquaculture development and the marketing of aquaculture and capture fisheries products;
- experience with working in a participatory manner; and
- fluency in English, good communication and writing abilities.

Duty station: Home country within the region and in-country travels.

Duration: One mission.

Terms of Reference

International consultant 1: disease surveillance, monitoring and reporting; contingency planning and emergency preparedness

Under the overall supervision of the Regional Representative for Europe (REUD), the technical supervision of FIRA Lead Technical Unit (LTU) Officer and FIRA Senior Aquaculture Officer, and in close collaboration with the Regional Project Coordinator and national consultants 2 and 5, international consultant 1 will assist in the implementation of the disease surveillance and contingency planning aspects of the project. Specifically, the consultant will perform the following duties:

First mission

1. conduct Regional Workshop 1 on Improving National and Regional Disease Surveillance, Monitoring and Reporting Systems;
2. prepare the Report for Workshop 1
3. plan and assist in the implementation of the Regional Aquatic Animal Disease Surveillance Programme;
4. provide guidance and technical inputs into the design and implementation of the Regional Disease Survey; and
5. submit a comprehensive report to FAO/FIRA LTU in both hard copy and electronic formats (in Microsoft Word 6).

Second mission

1. conduct Regional Workshop 4 on Improving National and Regional Contingency Planning and Emergency Preparedness;
2. prepare the report for Workshop 4;
3. evaluate the status of the Regional Disease Survey and make recommendations to address any problems or short-comings; and
4. submit a comprehensive report to FAO/FIRA LTU in both hard copy and electronic formats (in Microsoft Word 6).

Qualifications:

- university or related degree in aquatic animal health, epidemiology or veterinary medicine;
- at least five years experience in contingency planning and emergency preparedness for outbreaks of aquatic and/or terrestrial animal diseases;
- experience with working in a participatory manner; and
- fluency in English, good communication and writing abilities.

Duty station: Home base and travels to countries within the West Balkan region.

Duration: Two missions.

Terms of Reference
International consultant 2 – risk analysis and
aquaculture development and promotion

Under the overall supervision of the Regional Representative for Europe (REUD), the technical supervision of FIRA Lead Technical Unit (LTU) Officer and FIRA Senior Aquaculture Officer, and in close collaboration with the Regional Project Coordinator, and national consultants 4 and 6, international consultant 2 will assist in implementing the risk analysis and aquaculture development and promotion components of the project. Specifically, the consultant will perform the following duties:

First mission

1. conduct the risk analysis component of Workshop 3 (Improving the Capacity for Risk Analysis of Movements of Live Aquatic Animals/Harmonizing National Legislation);
2. prepare the risk analysis portion of the Report for Workshop 3; and
3. submit a comprehensive report to FAO/FIRA LTU in both hard copy and electronic formats (in Microsoft Word 6).

Second mission

1. participate as resource expert in Regional Workshop 5 on Improving Methods for Regional Aquaculture Development and Promotion;
2. prepare the report of Workshop 5; and
3. submit a comprehensive report to FAO/FIRA LTU in both hard copy and electronic formats (in Microsoft Word 6).

Qualifications:

- university or related degree in aquaculture, aquatic animal health or veterinary medicine;
- at least five years experience in conducting pathogen risk analysis for aquatic animals and in risk analysis training;
- broad familiarity with global aquaculture systems and trends in aquaculture development and promotion;
- extensive experience in scientific and technical writing and editing;
- experience with working in a participatory manner; and
- fluency in English.

Duty station: Home country and in-country travels.

Duration: Two missions.

Terms of Reference
FAO Technical Support Services: FIRA Senior Aquaculture Officer

Under the overall supervision of the Regional Representative for Europe (REUD, the FIRA Senior Fisheries Officer, in close consultation with the Lead Technical Unit (LTU) Officer of the Project, the Regional Project Coordinator, and all the international consultants, national consultants and other FAO officers, will carry out Supervisory Technical Services (STS) part of project implementation. The Senior Aquaculture Officer, while providing technical advice to the relevant FAO staff and national/international consultants throughout the project, will specifically undertake the following tasks:

First mission

1. participate as resource expert to the Regional Workshop 5 on Aquaculture Development and Promotion;
2. provide technical advice to other relevant FAO experts and national/international consultants on project implementation; and
3. prepare mission and back-to-office report.

Second mission:

1. participate as Resource Expert to the Project Terminal Workshop;
2. provide technical advice to the other relevant FAO experts and national/international consultants; and
3. prepare mission and back-to-office report.

Duty station: FAO Headquarters with in-country travels.

Duration: Two missions.

Terms of Reference
FAO Technical Support Services:
FIRA Aquaculture Officer (Aquatic Animal Health/Biosecurity)

Under the overall supervision of the Regional Representative for Europe, REUD, this officer will serve as the Lead Technical Unit (LTU) Officer of the Project and in close consultation with the Senior FIRA Officer and the Regional Project Coordinator, and will be responsible for the overall implementation of the Project. Specifically, the officer will perform the following duties:

First mission

1. revise the Implementation Plan of the Project based on discussions with the Regional Project Coordinator and National Focal Points;
2. revise the budgetary requirements of the Project, if necessary;
3. review and evaluate requests for short-term training;
4. review and evaluate the candidates for National and International Consultants;
5. supervise detailed planning for establishment of the West Balkans Aquatic Animal Health Website, the Regional Legislative Review and the Regional Disease Surveillance Programme and Regional Disease Survey;
6. conduct planning and assess requirements for the next set of activities that will be undertaken during months 4–6; and
7. prepare mission and back-to-office report.

Second mission

1. serve as a Resource Expert at Regional Workshop 1;
2. evaluate requests for equipment and expendables;
3. read and review consultants reports; and
4. prepare mission and a back-to-office report.

Third mission

1. serve as Resource Person to Regional Workshop 2;
2. conduct planning and assess requirements for the next set of activities that will be undertaken during months 7–9; and
3. prepare mission and a back-to-office report.

Fourth mission

1. serve as resource person to Regional Workshop 3;
2. conduct planning and assess requirements for the next set of activities that will be undertaken during months 10–12; and
3. prepare mission and a back-to-office report.

Fifth mission

1. serve as resource person to Regional Workshop 4;
2. conduct planning and assess requirements for the next set of activities that will be undertaken during months 13–15; and; and
3. prepare mission and a back-to-office report.

Sixth mission

1. serve as resource person to Regional Workshop 5;
2. conduct planning and assess requirements for the next set of activities that will be undertaken during months 16–19; and
3. prepare mission and a back-to-office report.

Seventh mission

1. organize and implement Project Terminal Workshop;
2. conduct planning for final reporting activities; and
3. prepare mission and a back-to-office report.

Duty station: FAO Headquarters with in-country travels.

Duration: Seven missions.

Terms of Reference
FAO Technical Support Services – Fishery Officer

Under the overall supervision of the Regional Representative for Europe, REUD, in close consultation with the FIRA Lead Technical Unit (LTU) Officer, the Regional Project Coordinator and national consultant 1 (legislation), the Legal Officer will:

First mission

1. revise the Implementation Plan of the Project based on discussions with the Regional Project Coordinator and National Focal Points;
2. revise the budgetary requirements of the Project, if necessary;
3. review and evaluate requests for short-term training;
4. review and evaluate the candidates for National and International Consultants;
5. supervise detailed planning for establishment of the West Balkans Aquatic Animal Health Website, the Regional Legislative Review and the Regional Disease Surveillance Programme and Regional Disease Survey;
6. conduct planning and assess requirements for the next set of activities that will be undertaken during months 4–6; and
7. prepare mission and back-to-office report.

Second mission:

1. participate as resource expert to the Project Terminal Workshop;
2. provide technical advice to the other relevant FAO experts and national/international consultants;
3. prepare mission and back-to-office report.

Duty station: FAO Subregional Office (Budapest) with in-region travel.

Duration: Two missions.

Terms of Reference
FAO Technical Support Services – Legal Officer

Under the overall supervision of the Regional Representative for Europe, REUD, the technical supervision of the Development Law Service (LEGN), in close consultation with the FIRA Lead Technical Unit (LTU) Officer, the Regional Project Coordinator and National Consultant 1 (Legislation), the Legal Officer will:

First mission

1. in collaboration with national consultant 1, to plan and conduct a review of the current legislation in place in the five participating countries relevant to aquatic animal health;
2. analyse the results of Activity 1 (above) and prepare a summary of results and recommendations to participating countries regarding the need to revise existing national legislation or to develop new legislation to assist meeting European Union trading requirements for aquatic animal products and to harmonize relevant national legislation with that of the EU; and
3. Prepare a mission report.

Second mission

1. attend Regional Workshop 3 (Risk Analysis/Legislation) to serve as a resource expert and in collaboration with national consultant 1 present the results of the Legislative Review; and
2. prepare a mission report.

Third mission

1. attend Project Terminal Workshop to serve as a resource expert on national legislation; and
2. prepare a mission report.

Duty station: FAO Headquarters with in-region travel.

Duration: Three missions.

Month: Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Formulation of Project Team	x																							
Establishment of Web site	x	x																						
Regional Workshops 1 Surveillance 2 Diagnostics 3 Risk Analysis and Legislation 4 Contingency planning 5 Aquaculture development				x				x				x			x				x					
National workshops					x				x				x			x				x				
Establishing disease Surveillance network and conducting regional disease survey				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Regional legislative review			x	x	x	x	x	x	x															
Short-term training (continuous)					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Preparation of project publications (continuous)					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Project terminal workshop																								x
Terminal report																							x	x

Project activity schedule

The FAO Regional Proposal Development Workshop “Assistance to Western Balkan Countries for Improving Compliance with International Standards for Aquatic Animal Health” was convened by FAO as part of the implementation of the FAO/TCP/RER/3206.

This regional workshop was used to explore the possibilities for a regional cooperation and development proposal to address common problems related to pathogen issues affecting regional trade between Western Balkan countries.

The workshop received active participation and strong interest and support in the development of the regional proposal.

The development followed a systematic, logical and transparent process and resulted to strong consensus on the scope and elements of the regional proposal through regional cooperation.

ISBN 978-92-5-106866-3 ISSN 2070-6987



9 7 8 9 2 5 1 0 6 8 6 6 3

I2209E/1/05.11