

別添資料 4 : ミニッツ

**THE MINUTES OF MEETING
BETWEEN
THE JAPANESE TERMINAL EVALUATION TEAM
AND
THE AUTHORITIES CONCERNED OF
THE REPUBLIC OF TURKEY
ON
THE JAPANESE TECHNICAL COOPERATION
FOR
“TECHNICAL DEVELOPMENT OF SUSTAINABLE
SEED PRODUCTION FOR BLACK SEA TURBOT”**

The Japanese Terminal Evaluation Team (hereinafter referred to as “the Team”) organized by Japan International Cooperation Agency (hereinafter referred to as “JICA”) and headed by Mr. Takashi MORI, visited the Republic of Turkey (hereinafter referred to as “Turkey”) between 27 August, 2006 to 7 September, 2006 for the purpose of Terminal Evaluation jointly with Turkish Evaluation Team for the Project on “Technical Development of Sustainable Seed Production for Black Sea Turbot” (hereinafter referred to as “the Project”).

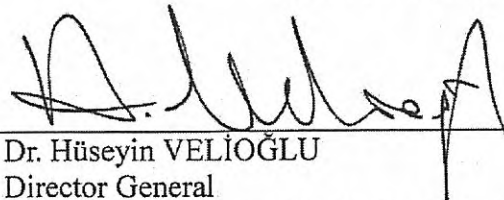
During its stay in the Turkey, the Joint Evaluation Team carried out interviews with the Project personnel and field inspection, exchanged views and had a series of discussions with the concerned authorities of Turkey.

As a result of the consultation, both sides agreed to report to their respective Governments the matters in the report attached hereto.

Ankara, 7 September, 2006

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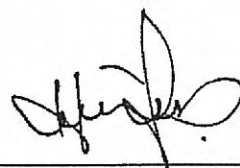
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TERMINAL EVALUATION REPORT
ON
THE JAPANESE TECHNICAL COOPERATION
FOR
TECHNICAL DEVELOPMENT OF SUSTAINABLE
SEED PRODUCTION FOR BLACK SEA TURBOT
IN
THE REPUBLIC OF TURKEY

Ankara, 7th of September, 2006

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1. Introduction

In the Republic of Turkey (hereinafter referred to as "Turkey"), "Fish Culture Development Project in the Black Sea" was implemented as a 5 years technical cooperation project from 1997 at the Trabzon Central Fisheries Research Institute (hereinafter referred to as "CFRI"). Subsequently, its follow-up project was implemented for a period of 2 years and 6 months until October 2004. The Project Purpose of the follow-up was "Seed Production and rearing techniques of flatfish species are developed". The Project Purpose was achieved at a high level in the first fiscal year, from 2002 to 2003. In other words, the goals of the project were well on the way to successful achievement. However, in the last fiscal year of the follow-up, namely 2004, dropsy, which had been a deterrent factor for stable seed production from the beginning of the project proper, attacked all seeds in their productive stage. In addition, a fish disease caused by the VHS virus spread from the initial stage of seed production. Thus, the Project failed to achieve its goal (achievement indicator; production of 10,000 seeds with a length of 100mm) in the true sense of the term.

To address the disease problems of Black Sea Turbot, *Psetta maxima* (hereinafter referred to as "Kalkan"), in August 2004, JICA dispatched the follow-up project consultation team for the "Fish Culture Development Project in the Black Sea." It was decided, based upon the team's findings that it would be difficult to continue and develop the aquaculture project at CFRI without solving these problems. Subsequent to the recommendation made by the team, the government of Turkey sent a new request to the Japanese government to implement a small-scale technical cooperation project with the purpose of establishing a VHS prevention system and measures to control an outbreak of dropsy. The request was adopted and the Turkish government was notified to that effect. Based on the background above, project on "Technical Development of Sustainable Seed Production for Black Sea Turbot" (hereinafter referred to as the "Project") has been implementing with mainly 2 activities, which are development of prevention method of VHSV and dropsy, for 2 years and 3 month.

A joint Terminal Evaluation Team (hereinafter referred to as "Team") was formed, consisting members from both Turkish and Japanese sides in the end of August 2006 with about 5 months remaining in the planned project period. The duties of the Team are to evaluate the degree of achievement of the project objective based on the 5 criteria, to identify remaining problems, and to make any necessary recommendations to the respective governments.

2. Members of the Joint Terminal Evaluation Team

2-1. Japanese Side

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2-2. Turkish Side

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3. Objectives of the Terminal Evaluation

The objectives of the terminal evaluation for the Project are as follows:

- (1) To evaluate the achievement of the Project in comparison with the Minute of Meetings (hereinafter referred to as "M/M"), Tentative Schedule of Implementation, Project Design Matrix for evaluation (hereinafter referred to as "PDMe") and Plan of Operations; and,
- (2) To recommend and propose the necessary measures to be undertaken in the remaining period of the Project and its future development to the authorities of the respective Governments.

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4. Methodology of the Terminal Evaluation

The terminal evaluation of the Project was conducted based on PDMe attached as Annex I, as well as interviews with the project personnel, field inspection, and series of discussions with the concerned authorities of Turkey.

5. Results of the Terminal Evaluation

5-1. Achievement

(1) Overall Goal

<Overall Goal>

Sustainable seed production of Black Sea Turbot is developed

<Objectively Verifiable Indicators>

Useful data and technology of seed production are available for the private sector

Since the duration of the Project is only 2 years and 3 months, more time is required to judge if the overall goal is fully achieved or not. The fact is that the Project and CFRI have disseminated information to academics and the private sector in the forms of news letters and magazines and CFRI staff frequently visited those stakeholders in the purpose of information sharing and extension of techniques. Private companies which are interested in the Kalkan production and researchers also visited CFRI to get knowledge and techniques of seed production.

In order to achieve the overall goal, following issues are suggested to continuous studies of eggs and larvae quality by CFRI;

- The causes of dropsy
- Mal-pigmentation and deformation
- Bacteria and parasite diseases
- Broodstock rearing

(2) Project Purpose

<Project Purpose>

Quality of produced seeds of Black Sea Turbot is improved at CFRI

<Objectively Verifiable Indicators>

1. VHSV-free seeds are produced

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2. Dropsy rate is decreased

In terms of VHSV study, the following activities were conducted;

- VHSV-free larvae were produced.
- Distribution/pattern of VHSV was clarified.
- Relation between VHSV and mass mortality was proved as negative.
- VHSV carrier status among hatchery-bred broodstock was studied.
- VHSV transmission to other species such as sea bass and sea bream was studied.
- VHSV identification and diagnosis techniques were transferred to the counterparts (hereinafter referred to as "C/P"s).
- VHSV preventive measures were identified.

Regarding dropsy study performance was as follows;

- Dropsy rate was decreased in both spawning season of 2005 and 2006 according to C/Ps interview, but the decrease ratio is under the examination.
- The causal relationship between the decrease and the project activities was not verified. The reason of this is that the Project duration was too short to identify dropsy and its countermeasures.

(3) Achievement of Outputs and Activities

<Output 1>

Preventive measures against VHS are developed

< Objectively Verifiable Indicators >

1. VHSV is identified
2. Prevention technique of horizontal and vertical transmission is established
3. Pathogenicity and susceptibility are clarified

<Activities>

- 1-1. Equipping necessary facilities and equipment
- 1.2. Conducting the training of PCR method to detect VHSV
- 1.3. Examining problems of current seed production method for Black Sea Turbot against VHS
- 1.4. Developing and introducing the preventive measures against VHSV into the seed production method for Black Sea Turbot

The Team confirmed that the following activities were completed;

- Necessary facilities and equipment were input. (See ANNEX VI)
- C/Ps were trained by a short-term expert and VHSV was detected.
- VHSV transmission route was identified and tracing technique was studied. Vertical transmission from broodstock to larvae and horizontal transmission among larvae were not identified. The problems of current seed production method for Kalkan against VHS were addressed in journals.
- Iodine disinfection method and pathogenicity were examined.

<Output 2>

Countermeasures against dropsy are developed

<Objectively Verifiable Indicators>

1. The courses of dropsy are studied
2. Dropsy occurrence is identified

<Activities>

- 2-1. Developing the criteria of quality eggs/larvae
- 2-2. Examining problems of current seed production method for Black Sea Turbot against dropsy
- 2-3. Developing and introducing the countermeasures against dropsy into the seed production method for Black Sea Turbot

The Team confirmed that the following activities were completed;

- Effective criteria for quality eggs and larvae were examined in terms of (1) survival activity index, (2) blastomere morphology, (3) dropsy, and (4) deformation.

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- Proximity of adjacent cell membrane and discreteness of cell margins observed in blastomere morphology could be one of criteria for quality eggs and larvae as well as dropsy observed in larvae body.
- Examinations to find out the causal relationship between dropsy and assumable factors such as seed density, salinity and temperature were taken.
- As the result of the examinations, some factors were confirmed as direct causes of dropsy; handling, high density and salinity.
- Temperature, iodine treatment, broodstock condition, pesticide and heavy metals were assumed not to be the direct causes of dropsy through the examinations.
- The occurrence and causes of dropsy, and countermeasures are still under examination.

5-2. Implementation Process

(1) Implementation process

According to the questionnaire, almost all C/Ps and long-term expert answered the activities had been implemented as scheduled.

(2) The way of technology transfer from Japanese experts to C/Ps

- Most of C/Ps (13 out of 14 questionnaires were answered) are satisfied with the way of technology transfer from Japanese experts.
- C/Ps who work in the fish disease section specially praised technology transfer on VHS conducted by the short-term expert.

(3) Decision making process

Decision making process was ambiguous according to the questionnaire survey and interview. There was not regular meeting among the members for information sharing and discussion.

(4) C/Ps allocation

C/Ps allocation was judged appropriate according the questionnaire survey.

(5) Collaboration among C/Ps, expert and project leader

Communication issues; among C/Ps, between C/Ps and the expert, and between the expert and the project leader were addressed by a number of C/Ps and expert.

(6) MARA and JICA Turkey office's support to the Project

MARA and JICA Turkey office have shared the information on the project implementation,

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