STRATEGIC ENVIRONMENTAL ASSESSMENT

of the National Fisheries Strategic Plan of Hungary and the Operational Programme for Fisheries of Hungary

Commissioned by:

Ministry of Agriculture and Rural Development

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FVM VIDÉKFEJLESZTÉS

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Environmental Report

to the Strategic Environmental Assessment of the National Fisheries Strategic Plan of Hungary and the Operational Programme for Fisheries of Hungary

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LIST OF ABBREVIATIONS

EAFRD	European Agricultural Fund for Rural Development
EFF	European Fisheries Fund
EiC	Env-in-Cent Consulting Ltd.
ESA	Environmentally Sensitive Areas
FIFG	Financial Instrument for Fisheries Guidance
HASCRR	Hungarian Academy of Science Centre of Regional Researches
MARD	Ministry of Agriculture and Rural Development
MEW	Ministry of Environment and Water
NDPC	National Development Policy Concept
NEC	National Environmental Council
NEP-II	Second National Environmental Programme
NFSPH	National Fisheries Strategic Plan of Hungary
NHDP	New Hungary Development Plan
NHRDP	New Hungary Rural Development Programme
NHRDSP	New Hungary Rural Development Strategic Plan
NIENW	National Inspectorate of Environment, Nature and Water
NWMP	National Waste Management Plan
NRDPC	National Regional Development Policy Concept
NSC	National Society of Conservationists
OPEE	Operational Programme for Environment and Energy
OPF	Operational Programme for Fisheries
ROP	Regional Operational Programme
SEA	Strategic Environmental Assessment
WFD	Water Framework Directive

INTRODUCTION

The Ministry of Agriculture and Rural Development (MARD) – as the responsible planning authority of the Hungarian National Fisheries Strategic Plan of Hungary[1] (NFSPH) and the Operational Programme for Fisheries (OPF) – officially initiated the preparation of the Environmental Report and the Strategic Environmental Assessment (SEA) in accordance with the 2/2005. (I.11.) Government Decree (hereinafter SEA Decree) towards the National Inspectorate for Environment, Nature and Water (NIENW) on 23rd February 2007. The MARD submitted the draft content of the SEA according to the subsections (1) - (6) of Paragraph 7 of the SEA Decree to the NIENW for approval, which was approved by the NIENW with some minor amendments. **This Environmental Report was elaborated by taking into account of the suggestions of the NIENW.**

In our approach the subject of the SEA is the European Fisheries Fund (EFF) -sourced fisheries policy; the SEA was elaborated on the NFSPH and the OPF in an integrated way, with the same approach, unified methodology and through a common consultation and public participation. The two-step planning of fisheries can give an adequate basis **to perform substantial decisions on behalf of the MARD on the proposals suggested by the SEA**, since by this integrated approach the elaboration and integration of the comments (SEA proposals) can be made parallel with the opinion of the Commission in the programming process. According to the sustainable development policy of the EU the Strategic Environmental Assessment is an instrument of proactive environmental protection; it shows the interventions and measures with their possible environmental risks even in the strategic phase of the programming process. The starting point of the elaboration of the SEA is that the **fisheries measures** supported by EU's community resources **should be useful also in environmental terms** and the adverse effects on the individual environmental elements and systems should be minimised. Thus, the mission of the SEA prepared to the Plan and the Programme is to improve the environmental performance of the fisheries policy, to promote the implementation of the environmental policy objectives and to help to avoid the expensive corrections by well-based decisions.

The ultimate objective of the SEA for the National Fisheries Strategic Plan of Hungary and the Operational Programme for Fisheries of Hungary is to compile an Environmental Report that provides feasible proposals in order to improve the environmental performance of fisheries' measures and to enforce sustainable development in the fisheries sector.

The MARD shall take the results of the SEA Environmental Report into consideration during the elaboration process of the final version of NFSPH and OFP submitted to the Government and shall undertake to submit the Environmental Report and the summary of partnership consultation attached to the Programme towards the Government.

[1] The term „fisheries" includes both capture fisheries and aquaculture in the Hungarian teminology.

1. ELABORATION PROCESS OF THE ENVIRONMENTAL REPORT

1.1 Background information

Initiatial stages and the legal background of the Strategic Environmental Assessment

The Ministry of Agriculture and Rural Development (MARD) – as the responsible planning authority of the Hungarian National Fisheries Strategic Plan of Hungary (NFSPH) and the Operational Programme for Fisheries (OPF) – officially initiated the preparation of the Environmental Report and the Strategis Environmental Assessment (SEA) in accordance with the 2/2005. (I.11.) Government Decree (hereinafter SEA Decree) towards the National Inspectorate for Environment, Nature and Water (NIENW) on 23rd February 2007. The MARD submitted the draft content of the SEA according to the subsections (1) - (6) of Paragraph 7 of the SEA Decree to the NIENW for approval, which was approved by the NIENW with some minor amendments. **This Environmental Report was elaborated by taking into accounts of the suggestions of the NIENW.**

The object of the Strategic Environmental Assessment

On the basis of the Council Regulation EC 1198/2006 (27th June 2006) on the community support for fisheries financed by the European Fisheries Fund (hereinafter EFF Regulation) the MARD has started the elaboration of the National Fisheries Strategic Plan of Hungary and the Operational Programme for Fisheries (hereinafter NFSPH and OPF, or, the Plan and Programme) in accordance with the Articles 17 and 19 of the EFF Regulation. The planning process should be conducted as a two-step method:

1. The Hungarian **National Fisheries Strategic Plan of Hungary** should be elaborated and submitted to the Commission for judgement. This document is the National Fisheries Strategic Plan of Hungary that has been developed and is under consultation with the European Commission.
2. The **Operational Programme for Fisheries** should be elaborated in compliance with the opinions of the Commission and the partnership consultations. This document is the Operational Programme for Fisheries of Hungary (hereinafter the Programme); which document is under development, in such phase where modifications made by the experts can be integrated.

In our approach the subject of the SEA is European Fisheries Fund (EFF) - sourced fisheries policy; the SEA was elaborated on the NFSPH and the OPF in an integrated way, with the same approach, unified methodology and through a common consultation and public participation. The two-step planning of fisheries can give an adequate basis **to perform substantial decisions on behalf of the MARD on the proposals explored by the SEA**,

since by this integrated approach the elaboration and integration of the comments (SEA proposals) can be made parallel with the opinion of the Commission in the programming process.

Features, mission and objectives of Strategic Environmental Assessment

The European Commission intends to take into account the principles of both Lisbon and Gothenburg Strategy in the programme making and planning processes. Programmes elaborated for the new the programming period from 2007, should support **the environmentally sustainable improvement of competitiveness and social cohesion**. An important element of the new programming approach is to ensure that the fisheries policy of the EU and its implementation at national level should contribute to the principles of the Sustainable Development Strategy of the EU at community, national, regional and local level. According to the sustainable development policy of the EU the **Strategic Environmental Assessment is an instrument of proactive environmental protection**; it filters the interventions and measures with possible environmental risks even in the strategic phase of the programming process.

The starting point of the elaboration of the SEA is that the **fisheries measures** supported by community sources **should be beneficial also in environmental terms** and the adverse effects on the individual environmental elements and systems should be minimised. Thus, the mission of the SEA prepared to the Plan and the Programme is to improve the environmental performance of the fisheries policy, to promote the implementation of the environmental policy objectives and to help to avoid the expensive corrections by well-based decisions.

1.2. Relation to the planning process of the NFSPH and the OPF

1.2.1. Management of the elaboration and consultation process of the SEA

The MARD – in co-operation with the Ministry of Environment and Water – has delegated an independent group of experts experienced in the SEA process and fisheries for the elaboration and consultation process of the SEA **(SEA Working group)**. The activities of the Working group were co-ordinated by the Env-in-Cent Consulting Ltd. (EiC). The public consultation process was conducted by the **National Society of Conservationists (NSC)**. In the course of planning and managing this process, the NCS has proceeded both with the MARD, the authority responsible for the Strategic Plan and the Programme and the EiC in key issues. The members of the working group are listed below; the details of public participation are detailed in Chapter 1.4.

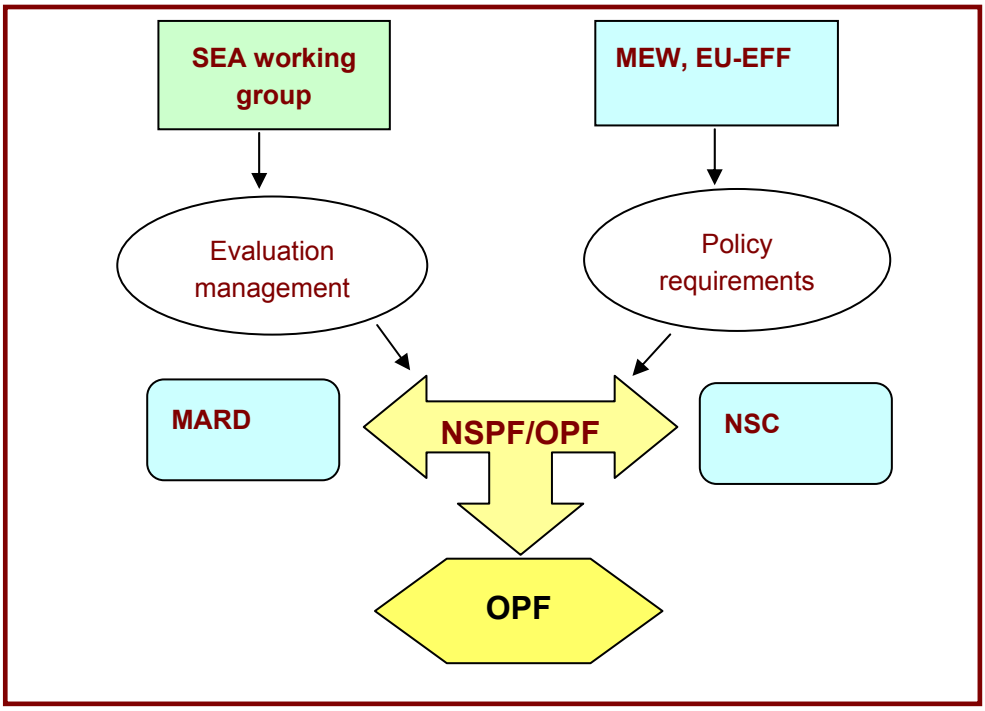
Table 1. Members of the SEA working group

Planning and Programming expert (Representative of MARD)	***János Gábor*** (Deputy-head of Department, MARD)
Environmental and nature conservation expert (Representative of MEW)	***Tamásné Vajna*** (Deputy-head of Department, MEW)
Ex-ante evaluation expert	***Balázs Altorjai*** (Consultant, Agrár Európa Consulting Ltd.)
Rural Development expert	***Tamás Czira*** (Geographer, Envigraph Bt.)
Public consultation expert	***Teodóra Dönsz*** (NSC)
Public consultation	***Ákos Éger*** (NSC)
Co-ordinator of Public consultation	***István Farkas Dr.*** (Chairman, NSC)
Ecology expert	***Pál Gera*** (Chairman, Foundation for Otters)
Water Management expert	***Ferenc Ligetvári Dr.*** (Professor, Szent István University)
Environmental Assessment expert	***Zoltán Máyer*** (Environmental engineer, Env-in-Cent Ltd.)
SEA Professional Co-ordinator	***Tamás Pálvölgyi Dr.*** (Managing Director, Env-in-Cent Ltd.)
Rural Development expert	***Márton Péti Dr.*** (Geographer, Envigraph Bt.)
Management and Consultation expert	***Éva Enikő Szabó*** (Biologist, Env-in-Cent Ltd.)
Fisheries expert	***István Szűcs Dr.*** (Senior Lecturer, Debrecen University)

The elaboration process of the SEA started at the beginning of February 2007 after the approval of the concept and the working schedule by the MARD; the Programme version with the proposed measures were received by the experts of the SEA working group on 19th February[2].

[2] The statements of the present Environmental Report are referred to the version of the Plan and Programme made on 20th November 2006. The modifications made in the Programme were taken into consideration by the working group. The last version of the Programme was finished on 27th January 2007. The comments emerged from the authorites and during public consultations were taken into consideration in the elaboration process, as it is descripted in Chapter 1.4.4.

The management process of the Strategic Environmental Assessment



1.2.2. Relation to the Planning Process

The elaboration, consultation and modification process of the Plan and the Programme has influenced and modified the working scedule of the SEA. The main elements determining the elaboration of the Environmental Report is summarized the following:

- **The time constraint for the elaboration of the Environmental Report** was resulted by the strict working schedule of the Plan and the Programme and the fact that the decision on the development of the SEA for the fisheries policy was made long after the other Operational Programmes of the NHDP.
- The **elaboration** of the NFSPH and the OPF, the ex-ante evaluation and the **SEA was heavily influenced by the absence of some basic strategic documents**[3]. (for example, at present, Hungary hasn't got an agricultural strategy which is consulted by the public and is approved, there is no concept for the improvement of healthy nutritional methods. The National Sustainable Development Strategy and the Strategy for the Protection of Biodiversity has also not been elaborated yet. Without these conceptional documents, some statements of the Environmental Report shall be considered as previous appraisals (these are indicated in this Environmental Report).

[3] In some cases, for example in the field of water management the development of the strategies has already been finished at professional and scientific level, the strategies have been completed, but, the final approval has not been finished at the time of the development process of the Report.

- Recently, **intensive consultative meetings and constructive professional debates have been held** between the experts of the MARD and the SEA working group **in some fields (for example in the field of water management and animal husbandry).** These consultations were held in the 30-day period for SEA public consultations and resulted a consensus, which **affected significantly the present version of both the Programme and the SEA**.

1.3. The effects of proposals made in the course of the elaboration process of the NFSPH and the OPF

The role of the MARD has been appreciated in providing the information and data required for the elaboration of the Environmental Report in this short-term SEA process. The proposals and comments made on the sustainability of the Plan and on the improvement of the environmental performance of the Programme were continuously consulted by the MARD and were fitted in the relevant documents. **The work of the SEA Working Group was supported by a positive and constructive approach of the experts and the administrative leaders of the MARD.** This positive administrative attitude that far exceeded the legal obligations has significantly contributed to the completion of the Environmental Report.

1.4. Stakeholders' involvement in the elaboration process of the Environmental Report

1.4.1. The concept of the professional and public consultation

The legal framework of the public consultation is provided by the Aarhus Convention and Espoo Convention as well as certain Hungarian legislative provisions and the SEA Decree in particular. The concept is worked out in accordance with the requirements and principles of these regulations; the definition of 'public consultation' is determined by the SEA Decree of Hungary. Since the National Fisheries Strategic Plan of Hungary and the Operational Programme for Fisheries of Hungary are considered as plans with national impacts and importance, **the definition of 'public' or 'stakeholders' covers the professional, representative and social organizations of environmental protection and nature conservation; other organizations and institutions of environmental and fisheries affairs; and, the general public as well**. These groups are the subjects of public consultation. A plan was made on the process of public consultation and judged by the representatives of the public concerned.

Access to information

- *Homepage:* all the information generated during the Assessment and discussed by the working group are available for the public, including the draft versions of the Strategic

Plan, the Programme and the Assessment, the comments of the public consultations etc. The public documents are available at the homepage of NSC (www.mtvsz.hu/skv), that can be accessed directly from the homepage of MARD (www.fvm.hu), and the homepage of EiC (www.env-in-cent.hu). The homerpage is managed by the NSC.

- *Other access:* the key documents are to be sent on paper or CD by mail for those having no access to the internet if requested.

Providing direct information

- *Press:* In the key stages of planning, the NSC (as the responsible for the management of the public consultation) in co-operation with the MARD shall actively inform the public concerned at the homepage and by other means as well. In addition, after the completion of the Environmental Report, a press release shall be organised and an advertisement shall be published in a national newspaper by the MARD.
- *Direct questions:* The most important professional, representative and non-governmental organizations of environmental protection were informed by a direct e-mail at the beginning of the environmental assessment, in addition, the news were spread through the e-mail lists of these organizations.
- *Direct messages:* Those registered at the homepage an extra message was sent when a new document was uploaded to the homepage, and the registered users were informed about the completion of the environmental assessment and the starting date of the 30-day consultation period.

Consultation with the public and administrative bodies concerned and the possible way of direct public participation

- *General possibility for disclaiming of opinion*: The actual documents of the work were available at the homepage; anyone was allowed to send comments at any stages of the assessment through the homepage. The comments were received by the experts participating in the assessment and were taken into consideration during the further stages of work.
- *Public debate of SEA Environmental Report – Partnership Conference*: The document of the Strategic Environmental Assessment (in accordance with the rules of the consultation document of the Decree) shall be conciliated at a Partnership Conference. The participants – about 100 organisations and institutions – were invited through e-mail lists and direct letters. The consultation period of the document was 30 days. The opinions and comments on the documents could be either made in oral form at the Conference, or in written form through the homepage or sent by mail. The oral comments were recorded in the Protocol.
- *National Environmental Council*: The working group initiated that the Environmental Report and the Operational Programme for Fisheries should be discussed by the National Environmental Council.

The received documents were processed and they were taken into consideration by the participants of the assessment at the final developmnent of the document. Each comment – either in oral or in written form – was answered in written form on their comments and about the way it was taken into consideration. The MARD, in accordance with the provisions of the SEA Decree, shall take into account the results of the Environmental Report at the elaboration of the final version of the Operational Programme for Fisheries that is to be submitted to the Govermnent.

Table 2: Time schedule of the public consultation

5th February	Conciliation of public consultation methods with the SEA Workig Group
9th February	Start of the homepage
30th April	Completion of the Environmental Report, public disclosure
25th May	Partnership Conference
29th May	Deadline for comments of the public
25th September	Submission of the final version of the Environmental Report to the MARD
15th October	Feedback to the participants of the public consultation

1.4.2. Involvement of the authorities for environmental protection

Identification of the authorities for environmental protection

According to the Government Decree No.2/2005. (I. 11.) the following authorities should be involved in the assessment process : the Ministry of Environment and Water, the Chief Medical Sanitation Office, the Ministry of Agriculture and Rural Development and other institutions with national authority listed in the Annex 3 of the SEA Decree.

The performance of the assessment process was personally negotiated by the SEA Working Group with the competent department of the MEW, where the National Inspectorate of Environment, Nature and Water was assigned as competent environmental authority for the administrative issues of the assessment process. The authority was notified by the MARD at the starting date of the assessment and the programme was sent for consultation. The SEA group integrated the comments of the authority into the final version of the working programme. After the completion of the assessment, the authorities shall receive the documents of the Environmental Report for consultation.

Involvement of professional organizations

The professional organizations were involved into the process of the environmental assessment by the means of public participation, such as active information, conferences, homepage and written comments.

Involvement of the National Environmental Council

The documents of the Environmental Report shall be submitted to the National Environmental Council for written comments with a 30-day deadline.

1.4.3. Involvement of the public concerned

Everyone had the opportunity to take part in the process through the homepage and the partnership conference.

The SEA Homepage

The SEA homepage (www.mtvsz.hu/skv) has been available since the beginning of the preparation of the SEA. The NSC informed the potential stakeholders on the launch of the homepage and the development of the SEA by direct contacts or mailing lists. The homepage contains:

- Current information on the elaboration process of the SEA.
- The consiliation methods of public communication that contains the elaboration process and the time-schedule of the SEA, as well as the methods to be involved and making comments.
- Working documents of the SEA and its preliminary results.
- All comments made on the SEA, in full extent.
- All documents concerning the SEA elaborated by the MARD.

By request, anyone can be informed by e-mail when a new document is uploaded to the homepage, the comments and questions are expected at skv@mtvsz.hu.

SEA Conference

An open partnership forum was organised by the MARD on the documents of the Environmental Report where the environmental partners and the representatives of the fisheries sector were invited, but anyone could participate.

1.4.4. Comments and their consideration

Proposals for the SEA on the homepage

The comments and proposals to the document were processed by the Working Group and were released at the homepage. All comments should be answered in written form after closing the process. During the elaboration process 141 comments and proposals arrived

from the authorities and the non-governmental organizations 17 of which were concerned not to the SEA, but the Strategy, the Programme or other general regulation issues. 55 comments did not contain new proposals. The majority (52 proposals) of the remaining 69 proposals were accepted by the SEA working group.

Proposals to the Environmental Report made by authorities and their consideration

The National Environmental Council, the National Inspectorate of Environment, Nature and Water, the Chief Medical Sanitation Office, the Ministry of Health and the under-secretary of state for nature conservation of the Ministry of Environment and Water have sent comments on the documents. 42 of the comments were concerned to the SEA documents, 32 of them were accepted by the SEA working group. 21 of the comments did not contain new proposals, or were not connected closely to the SEA. The results of the Environmental Assressment were accepted by the under-secterary of state for environmental management of the Ministry of Environment and Water, the Ministry of Education and Culture, the Ministry of Economy and Transport, the Ministry of Local Government and Regional Development and the National Inspectorate for Disaster Protection, the approval was sent in written form.

The National Environmental Council emphasized the importance of the use of integrated methods for planning and analysis, as an important aspect of the SEA. The importance of situation analysis – based on up-to-date information – was also set off, and the increase of severity of the regulations was also proposed. The SEA working group put the latter questions into the competence of the strategy and program makers.

The proposals made by the National Inspectorate of Environment, Nature and Water amended the professional features and the interpretation of the document. The Inspectorate made comments on the regulations of hunting and the objectives of the NFSPH.

The Chief Medical Sanitation Office drew the assessment makers' attention on the public sanitary regulations for the treatment of fish corpses.

The Ministry of Health drew attention to the public health regulations related to the storage of manure, made comments in connection with sanitary questions regarding the collection of fish corpses and the usage of manure, and, on the regulations of water leakage problems of animal farms situated near fish-ponds.

The proposals of the under-secterary of state for nature conservation and environmental protection of the Ministry of Environment and Water improve the professionality of the document and the correctness of the definitions.

The proposals of the social partners to the Environmental Report and their consideration

8 social partners made proposals in written form to the document. Most of the participants of the partnership conference sent their oral proposals also in written form. 2 of the comments without written proposals were answered on the spot, and they were accepted and were taken into consideration during the final elaboration of the document. 27 of the written proposals were concerned to the Environmental Report, the SEA working group

accepted 27 of them. Further 45 of the comments were not connected closely to the SEA. The Hungarian Chamber of Commerce and Industry made a written notification that they do not have any comments on the document.

The Aranyponty ZRt. insisted on measures for the stabilization of the fisheries sector at the conference. They made a proposal for the standardization of the technical terms used in the report and the harmonization of the phrases used in different strategic documents. These proposals are just partly connected to the competences of the SEA. The proposal for the protection of of water bodies used by fish producers – in compliance with the written notion of the Hungarian Fish Producers' Association – was accepted.

The representative of the National Association of Hungarian Farmer's Societies and Co-operatives (MAGOSZ) made a proposal on the analysis of the Strategic Plan and the OPF on the ground of financial allocation plan.

In written notes, the proposals of the Working Group for Fisheries Development were connected to the interpretation of the European Fisheries Fund Directive and its nomenclature. Their proposals made on integrated planning methods, strategy development and impoundment are in the Ministry's competence.

On the proposal of the Hungarian National Chamber of Hunters and the Foundation for Otters the subject of hunting was deleted from the Environmental Report. The Foundation made another proposal for the protection and maintenance of natural habitats, which was accepted.

The proposal of the Balaton Integration Public Non-profit Company on local distribution of local products was accepted. Other proposals were made on the conditions for anglers' permissions, the survey and improvement of supply and demand situation of fish consumption. These proposals should be decided at higher strategic level.

The Hungarian National Association of Anglers made proposal on the use of technical terms.

The Alliance of Angling Associations of Tolna County made comments on the regulations of angling activities, the involvement of the associations of anglers into the plan making process, the conditions for upkeeping fish ponds and the possible improvement of working places by angling activities. These comments do not belong to the scope of the SEA.

Agrár Európa Ltd. noticed the possibilities for using renewable energy sources, the need for minimizing waste, for the establishment a unified water-protection system, and for the importance of a wide professional conversation.

1.5. The quality of the data and reliability of information

The main information base of the Environmental Report was the National Fisheries Strategic Plan of Hungary and the Operational Programme for Fisheries so the reliability of the SEA is determined by the use of the data thereof. The uncertainity of the information

used for the Plan and the Programme is examined by the ex-ante evaluation of the NFSPH and the OPF; therefore, the Environmental Report shall not deal with it.

However, it is important to underline that the uncertainities of both the NFSPH and the OPF, and certain parts and statements of the Environmental Report can be reduced significantly if **research-analysis studies were elaborated – in the framework of authentic scientific workshops –** in certain key issues (e.g. climatic change, environmental issues of the imporovement of fish consumption). The demand for scientific analyses is indicated in the Environmental Report. The start of such scientific-based methodology development is considered very important as it helps **to examine the sustainability of objectives and measures of the fisheries sector by specific indicators that may result less uncertainity than with the former, subjective, professional evaluation methods**.

The reliability of information is also influenced **by the absence of some basic strategic documents** in certain fields. The scientifically developed conceptual documents (such as the National Sustainable Development Strategy and the Strategy for the Protection of Biodiversity) that are based on wide professional and public consensus, unfortunately, do not exist in Hungary at the present, although they could support the elaboration of the Plan and the Programme, the ex-ante evaluation and the Environmental Report. The reliability of the data and information of these strategies would increase the data reliability of the NFSPH and the OPF.

1.6. Evaluation methods applied in the Strategic Environmental Assessment

1.6.1. Requirements for the methodology

In our approach SEA is not only a 'green mirror' i.e. a tool for the evaluation and screening a Programme in environmmental and sustainability aspects, but also a 'green engine', namely a tool for determining the elaboration, implementation and monitoring processes of the Programme in environmental and sustainability aspects. These criteria can be fulfilled if the applied methods examine **the extent of integration of the relevant sustainability and environmental objectives in the fisheries policies supported by Community financial resources.** On the basis of the relevant legal rules and complying with the objectives of environmental integration the methods used in the process of SEA should provide:

- support to the analysis of the NFSPH and the OPF in order to allow prevailing the prevention principle and the decrease of non-preventable environmental impacts;
- influence on the planning process in environmental and sustainability aspects, the evaluation of alternatives and proposals and their life-cycle analysis;
- the determination of the environmental problems and values regarding to the Hungarian countryside and the agriculture, the measures of the value of order for sustainability and the evaluation of the importance thereof, in terms of the fisheries policy efforts.

1.6.2. Applied methods

The applied SEA methods are based on the GRDP Handbook[4] and provide such an evaluation-analysis framework thet can explore the direct and indirect impacts of a plan on the environment, the possible environmental changes derived from these impacts, the characteristics and the extent of the impacts and the possible ways to prevent or reduce the harnful effects or damages. The methodology of evaluation is based on the formerly developed[5] and applied[6] approach that **the strategic level of the fisheries policy (i.e. objectives and priorities) is compared to special value of order for sustainability, while the more detailed tools and measures covered py the Programme are evaluated in an evaluation scheme for environmental performance.**

Methodology for the sustainability evaluation of the NFSPH

The National Fisheries Strategic Plan of Hungary contains the **objectives and priorities of the fisheries policy** implemented by Community sources. The sustainability of the objectives was examined by the following methods:

1. The value of order for sustainability regarding the fisheries sector and fish farming were determined and adatped to the domestic conditions. **Value of order for sustainability** (see Chapter 3.2.2.) shall record the approach of sustainable fish farming, the controlling criteria and points of reference. The value of order for sustainability for the fisheries (as suggested by several studies and publications[7]) is based on the 3+1 pillars of sustainability:

[4] Handbook on SEA for Cohesion Policy 2007-2013, Greening Regional Development Programmes Network February 2006, Exeter, UK

[5] T. Pálvölgyi, E. Tombácz (2004) Módszertan a regionális fejlesztések stratégiai környezeti vizsgálatára. (Methodology for the Strategic Environmental Assessment for Regional Development) In: Structurális alapok és fenntarthatóság. Magyar Természetvédők Szövetsége (National Society of Conservationists), 2004, Budapest

[6] T. Fleischer, J. Szlávik, R. Baranyi, F. Branner, N. Nagypál,M. Füle, K. Kósi, T. Pálvölgyi, T. Princz-Jakovits, P. Szlávik. (2005) A magyar közlekedéspolitika stratégiai környezeti vizsgálata. (Strategic Environmental Assessment of the Hungarian Transport Policy.) Közlekedéstudományi Szemle LV. évfolyam 2. szám, 47-55

[7] References for the topic of values of sustainability:

Ángyán József, 2005. A vidékfejlesztés és az agrárium jövõje - stratégiatervezet és civil program. In: Az uniós környezetpolitika aktuális kérdései (The future of rural development and agriculture – draft strategy and non-governmental programme.), Magyar Természetvédők Szövetsége (NSC)

CORASON Report, 2006. The knowledge-based approach to sustainable rural development – dynamics of professional and local knowledge forms. Research Report, Hungarian Academy of Sciences, Institute of Political Sciences

Csatári Bálint, 2005. Mmagyar vidék? Lehetőségek és kolátok. (Hungarian countryside, where to go? Possibilities and barriers) HAS CRS

Gyulai, I. Vágvölgyi, G. Szilvácsku, Zs., 2005. Az Országos Fejlesztéspolitikai Koncepció fenntarthatósági és természetszempontú vizsgálata. (Sustainability and nature conservation assessment of the National Development Policy Concept) Magyar Természtvédők Szövetsége. (NSC)

Krolopp, A., Marticsek, J., Francia, R. 2005. A vidékfejlesztés európai jelene és jövője. Várható változások az uniós vidékfejlesztési szabályozási rendszerben, és ezek valószínű következményei. (The present of rural development in Europe. Possible changes in the EU's rural development regulatory system and their expected consequences.) CEEWEB, Miskolc

Nemes, G., 2000. Actors of Rural Development in Hungary. Intézmények, megközelítések, erőforrások. (Institutions, approaches, resources. A vidékfejlesztés szereplői Magyarországon.) HAS Institute of Economics; Budapest

- environmental sustainability
- economic sustainability and
- social sustainability.

These characteristics were completed by some holistic aspects connecting to the entire natural and socio-economic existence. The value of order for sustainabilitys of the domestic fisheries policy consisting of 29 criteria were drawn up in the framework of the 3+1 pillars. The value of order for sustainability, of course shall not be considered as the absolute declaration of sustainability, and one could not make any judgements on the sustainability of the NFSPH and the OPF by this. We consider the value of order for sustainability as a tool or a relative reference for the different priorities and objectives to compare with.

2. The priorities and objectives of the National Fisheries Strategic Plan of Hungary have been examined separately in complience with the values. We characterized the compliance of sustainability **for each element by values between -2 and +2, by a collective expert's judgement of the SEA Working Group** (the evaluation matrixes are attached in Annexes 2. and 3.).
3. We shall note that this evaluation method does not make any judgements on the general objectives, but draws attention with its lower values for those aspects of sustainability and elements of value of order for sustainability where the aspects of sustainability should be represented in a more definite way. Namely, **these methods do not want to put the priorities and objectives into the dimension of 'sustainable – non-sustainable, it shall be used as an analytical tool for decision making** that would like to provide clear guidelines for the priorities and objectives we propose to modify.

Methodology for the evaluation of the environmental performance of the OPF

As it was mentioned earlier, the more concrete tools and measures of the Programme are examined by an evaluation scheme of environmental performance in order to get information on that how the measures comply with the environmental and environmental policy aspects that are based on the National Environmental Programme or other environmental strategic documents. The environmental performance of the Operational Programme for Fisheries was examined according to the following methods:

1. A set of environmental objectives was determined based on the relevant environmental policy documents[8] that are suitable for the evaluation of the fisheries measures. This set

Tombácz, E., Pálvölgyi, T., Gyulai Iván, Szilvácsku, Zs., Fleischer, T., Mozsgai, K., Magyar, E. 2003. Stratégiai Környezeti Vizsgálat a Regionális Operatív Program környezeti szempontú ex-ante értékelésének megalapozásához. (Strategic Environmental Assessment for the environmental ex-ante evaluation of Regional Operational Programme) VÁTI Kht.

[8] National Strategic Reference Framework, EU 6. Environmental Action Plan, National Environmental Programme, National Development Policy Concept, National Waste Management Plan, National Agri-Environmental Programme, National Action Plan for Environment and Health

of objectives takes the environmental priorities of prevention, re-cycling (re-use) and disposal into account.

2. The measures of the OPF were compared to the environmental aspects by a collective evaluation of the experts, where the environmental performance of each measure was characterized by values between -2 and +2.
3. Similar to those mentioned in the evaluation of sustainability we shall note that this evaluation method does not serve the general judgement on the different measuzres, but draws attention with its negative values for those environmental aspects where the enviromnental aspects of should be represented in more definite way. Namely, **these methods do not want to put the priorities and objectives into the dimension of 'environment friendly – environment damaging, it shall be used as an analytical** that would like to provide clear guidelines for the measures we propose to modify.

   The aspects of the evaluation of the environmental performance were the following:

Aspects of the evaluation of environmental performance

E1	Reduction of air pollution
E2	Reduction the impacts of global air pollution
E3	Protection of surface waters, integrated water basin management
E4	Protection of groundwaters
E5	Protection of the soil and geological values
E6	Protection against the effects of extreme climatic events and environmental disasters
E7	Protection of areas under nature protection of national or local importance
E8	Protection and sustainable utilization of Natura 2000 and environmentally sensitive areas
E9	Nature conservation of forests
E10	Propagation of organic farming methods
E11	Development of sustainable regional farming methods and complex environmental farming systems
E12	Increasing the use of renewable energy sources
E13	Increasing the efficiency of materials and energy use
E14	Mitigation of chemical and microbiological risks
E15	Health promotion and increasing food-safety level
E16	Promotion of the environmental awareness of the citizens and sustainable consumption patterns
E17	Conservation and sustainable use of landscape heritage
E18	Improvement of environmental quality of settlements and development of environmental infrastructure

2. THE OVERVIEW OF THE NFSPH AND THE OPF

2.1. Draft summary of the NFSPH and the OPF

The NFSPH contains the strategic framework for the whole Hungarian fisheries sector; the OPF, however, determines the use of the different sources financed by the EFF in the 2007-2013 period in compliance with the EU Common Fisheries Policy and the NFSPH. Thus, the strategic document contains more objectives and strategic elements then the Operational Programme has.

2.1.1. National Fisheries Strategic Plan of Hungary

One of the pillars of the strategy is the priority that suggests stimulating the increase of the domestic consumption of fish and fish products, which is at a very low level when compared to the relevant World and EU data. This priority can be fulfilled by motivating the domestic demand and broadening the range of products. The need for high quality processed or semi-processed products can be satisfied by broadening the present range of products and by developments made in the fish processing industry as well. The increase of the consumers' demand should be realized by the promotion of fish consumption. The increase of the production level should be reached by the establishing new fish ponds, the reconstruction of old and out-of-date fish ponds and reservoirs, developments of infrastructure, enlargement and development of intensive fish farms, building new fish processing plants, and developments that improves capacity-use of these projects.

The second pillar of the strategy is the improvement of productivity and the conservation of biodiversity in our natural waters besides satisfying the improving recreational needs, parallel to the conservation of the freshwater fishing traditions by the support of the population concerned.

It is a fact that under the present domestic circumstances of water management, fish ponds play a significant role in the improvement and conservation of the natural values of wetland habitats. The system of fish production in fish ponds is a special sector of the Hungarian agriculture which can display economic activities in such way that the natural resources used for the production can be continuously renewed by the production technologies they use; moreover, this production system also helps the conservation of these remarkable natural values of European importance.

Another important startegic elements are **the monitoring the sustainability of fish stock both at quantity and quality level** and the assistance based on scientific experiences by the contribution of the actors of the whole fisheries industry and the scientific institutes for fisheries as well. The above mentioned priorities are in close connection with the Common Fisheries policy and other Community objectives. (The main priorities of the NFSPH are introduced in the Chapter 3.2.1.) Specific and operative objectives are derived

from the general and global objectives and directives; therefore they have functional connections between them. The strategic document contains the strategic framework of the objectives and a situation analysis and evaluation as well, in which the exploration of the problems have great importance. The directions of development, the priorities and objectives and their relationship were derived from these analyses. The financial sources of these objectives are financed primarily by the EFF, the methods of support are determined by the Operational Programme; the secondary sources of the financial support are financed by national sources.

2.1.2. Operational Programme for Fisheries

The general objective of the Programme is to improve competitiveness of the fisheries sector parallel with the improving the quality and food safety of the fisheries products, nevertheless, in such way, that the compliance with the environmental, nature conservation and animal welfare aspects shall also be fulfilled. These objectives should be realized having regard for sustainability, considering that their marketing base can be characterized by the very low domestic fish consumption level that should be improved.

As Hungary has no coasts and fishing fleet, and there is no settlements which maintanence would be secured by fisheries activities, thus, in compliance with the 1198/2005 EC Regulation on the European Fisheries Fund, only objectives and measures connected to the Priority axes 2, 3 and 5 should be supported. The measures and the connected activities were determined in accordance with the nomenclature given by the executive part of the 1198/2005 EC Regulation on the European Fisheries Fund.

OPF deals with the determination of the regions under convergence and non-convergence objectives and it is taken into consideration at the allocation of financial support and supplementary measures. The analysis chapter of the Operational Programme introduce the whole production profile of the fisheries sector, reveals the experiences of the former Programme. The priorities and objectives were determined on the base of these data in accordance with the objectives of NFSPH. The document complies with the connections to different policies, programmes and funds in different chapters; it lays stress on the different aspects of environmental protection and the question of equality between men and women as well. In the Operational Programme the different measures and their financial background, the methods and institutional framework of implementation, monitoring and evaluation were also determined. The most important measures of the OPF are the following:

- **Aquaculture (2.1.):**
  - Construction and value added reconstruction of fish ponds, wintering and storage ponds and tanks and hatcheries; construction and reconstruction of dikes, ponds, fish-cradles, inlet and outlet channels and other water control structures;
  - Construction, reconstruction and modernization of intensive fish production plants utilizing geothermal energy or other alternative energy sources;
  - Investments improving social and working conditions realized at working places; development of the farm infrastructure; investments to decrease environmental damages; establishing the infrastructure of direct sales in fish farms.

- **Inland fishing (2.2):**
  - Obtaining and renewing fishing gears and equipment (including storage facilities in which the caught fish can be kept safely, fishing boats and vessels) except for current assets such as catching gears;
  - Renewing, manufacturing, purchasing and demonstrating traditional fishing gears and equipment (in fishery museums for instance);
  - Providing safe working conditions;
  - Manufacturing and purchasing new equipment for the improvement of spawning conditions and reproduction.
- **Investments in fish processing and marketing (2.3.):**
  - Developing and producing new products and product families;
  - Building, reconstruction and modernization fish processing plants taking into consideration all the aspects of environmental protection, animal welfare, food safety and hygiene;
  - Investments, which aim the improvement of working, hygienic and public sanitary conditions and the decreasing harmful environmental impacts.
- **Collective actions (3.3.):**
  - Researches aiming at the sustainable utilization of resources; development and testing innovative technologies which are based on the results of those;
  - Creating the network of Fisheries Cooperation of Knowledge and Technology Transfer, through which the following can be uniformly realized:
    i. Creating specific information data-base on market information in order to improve the market transparency of aquaculture products;
    ii. Providing specific information to the participants of the fisheries sector in order to develop their professional skills;
    iii. Launching common common programmes and projects in the framework of partnership between participants of the research sphere and the fisheries sector;
  - Research and Development activities aiming at the improvement of the quality and food safety of aquaculture products, developing and testing new tracing systems;
  - Establishment of Producers' Organizations in the fisheries sector in accordance with the Council Regulation 104/2000/EC.
- **Development of new markets and promotion campaigns (3.4.):**
  - Conducting market surveys and analyses;
  - Actions and promoting campaigns for encouraging the consumption of fisheries and aquaculture products and improving the image of the fisheries sector;
  - Development of quality certificates, product labelling, trademarks and standards;
  - Participation at trade-fairs and exhibitions.
- **Pilot projects (3.5.)**
  - Technical, technological and economic evaluation of the practical application of the results coming from scientific researches related to fish farming;
  - Technology transfer in fishery and fish production;
  - Elaboration and evaluation of fishery and fish production technologies with reduced negative environmental impacts;
  - Technological and economic evaluation of alternative fish farming and aquaculture production.

- **Technical assistance**
  - Generating new projects, co-operation with the potential candidates;
  - Managing examination committees and juries of innovative tenders;
  - Constructing statistics, evaluations and professional reports;
  - Improving management abilities;
  - Programme promotion.

2.2. Relation to other strategic documents

2.2.1. Relation to the National Regional Development Concept and the National Development Policy Concept

National Regional Development Concept

The National Regional Development Concept[9] (NRDC) determines the medium and long term objectives, directions, principles and framework of Hungary's regional development and the regional relations of all domestic public developments. The NRDC also contains elements that essential for the Strategic Environmental Assessment mainly from the point of rural development. **In the NRDC, rural development – as one of the pillars of regional policy – is built in the whole planning document**, the regional tasks of the agricultural policy are recorded in a separate chapter.

The NRDC insists on the improvement of capital interest and employment by strengthening the co-operation between the elements of agriculture, fisheries, forestry, wildlife management, hunting and tourism, by establishing land use aspects that are based on the principles of sustainability; with priorities of **agricultural policy and agriculture and rural development** in the areas of Lake Balaton, the Danube and the River Tisza (as areas with national importance for integrated development). The Programme contributes to this objective by the diversification of fish production and establishment of multifunctionality in the fisheries sector.

Proposal 1	Inland fishing in natural waters, fish production in fish ponds and the synergic structure of sectorial developments connected to these activities should be developed especially in the areas with national importance for integrated development (areas of the Lake Balaton, the Danube and the River Tisza).

According to the rural development concepts of the NRDC the aspect of sustainability have a regional dimension. This interpretation has a significant importance in the field of the development of local communities, thus, in developments of fishing activities and fish production as well. **Landscape approach** is another significant concept of the NRDC, which insists on adapting developments to landscape systems (landscape conservation). NRDC introduces new land use principles; most of them serve the sustainability of land use. The concept of sustainable land use is suggested to be used in the OPF as well.

[9] Parliament Decision No. 97/2005.(25th December.)

According to the NRDC, the sectorial **planning process** should be carried out with a **regional dimension**. The regional priorities of the NRDC connected to the agricultural policy should contain sustainability and regional development approaches to the fisheries sector's planning process. Accordingly, sustainability and competiveness shall be distinguished in the planning processes of the fisheries sector depending on the different circumstances of different regions. **The different objectives of the OPF regarding natural waters and aquaculture systems are in compliance with this approach**. Regional sustainability as a horizontal objective, however, can be strenghtened in the Programme, as fishing industry is a well-localized sector, depending on the regional environmental, economic and social conditions; the introduction of regionality as a horizontal objective therefore is suggested.

Proposal 2	We propose to complete the concept of horizontal sustainability of the NFSPH: *„At the enforcement of the horizontal policies the principles of local sustainability and landscape approach should be a basic criterion."*

According to the NRDC agricultural policy should develop such conditions of forestry and agriculture that serve the social maintenance capacity of rural areas, landscape conservation, environmental protection and organic farming, meanwhile complying with local landscape conditions; furthermore, it shall establish agricultural development that is decentralized at least at regional level. A key objective of the Programme is the maintenance of working facilities and living standards, as well as the conservation of local communities with fisheries traditions in these areas, in order to maintain sustainability in rural areas through developments carried out in the fisheries sector.

One of the main objectives of the Programme is to contribute to the regional development objectives determined by the **Regional Operational Programmes** and the coherence between the different directions of development; to contribute to the realization of regionally integrated developments. The establishment of a **regional network for economical co-operations** is also a key element of the regional development strategies as it is outlined in the NRDC. The Operational Programme for Fisheries contributes to this development policy objective by supporting scientific researches in the field of diversification of fish farming and fish production and improving multifunctionality of the sector.

Proposal 3	The conformity between the OPF and Regional Operational Programmes, which also play an important role in regional development should be ensured.

Another significant objective of the NRDC is **to improve the quality of the populations' living standards**, to decrease the present inequalities in quality of life and to support their special segments concernig for health-protection. In addition to the establishment and the maintainence of working facilities in rural communities, OPF contributes to the NRDC objectives regarding the quality of life and living standards by measures for increasing fish consumption, producing bio-products, and other high-quality food products.

National Development Policy Concept

The National Development Policy Concept[10] (NDPC) determines the medium and long term directions and framework of the entire domestic public development. The NDPC determines the concepts for development objectives in sectors that use primarily the different natural resources (such as agriculture, forestry, fishery and hunting) and within its framework it also contains possible directions for the development of the fisheries sector. In one hand, NDPC declares the possible methods for the modernization of these sectors, in the other hand determines different functions for the protection and reconstruction of environmental systems and landscape. The development policy did not want to solve the conceptual contradiction hidden in this dual effort at the level of the NDPC. The NFSPH and the OPF try to handle this problem partially, at their own level, by the introduction of differentiated supports for fishing in natural waters and fish breeding (aquaculture) i.e. by using geographical focuses.

The measures of the OPF on the reconstruction of indigenous fauna and habitats of natural waters should be preferred and strenghtened in connection with fishing activities in natural waters. Accordingly, the training activities and purchasing equipment for the prevention of poaching, or, the installation of special monitoring systems for water pollution or fish destruction should also be supported (especially in the area of Lake Balaton).

Proposal 4	The training activities and purchasing equipment for the prevention of poaching should be supported prominently, as well as the installation of monitoring systems for water pollution and fish destruction.

2.2.2. Relation to the New Hungary Development Plan and its Operational Programmes and to the New Hungary Rural Development Programme

The **New Hungary Development Plan (NHDP)** is the plan for using the financial sources of the Structural Funds and the Cohesion Fund. Both the priorities and the objectives of the NHDP contain rural development, general development, water management and water protection issues, but they have only indirect relations to the Operational Programme for Fisheries, they do not contain direct objectives to the development of the fisheries sector. The NHDP is a strategic planning document, to which different operational programmes (OPs) are connected. In terms of the environmental and sustainability measures of the Programme the following OP elements are connected to the OPF:

- *Regional Operational Programmes (ROPs).* ROPs contain developments in recreational activities such as angling and water tourism, support regional water management projects, help to improve water quality by their measures for small-scale sewage disposal and filtering, and drainage of rainwater. Their measures connected to nature conservation and environment-awareness can be linked to the attitude changing aspects of the OPF.

[10] Parliament Decision No. 96/2005. (25th December.)

- *Operational Programme for Environment and Energy (OPEE)*. It is connected to the OPF by its measures on water management (in the areas of the Lake Balaton, the Danube and the River Tisza), renewable energy sources, nature conservation and environmental awareness (sustainable consumption).
- *NHDP Lake Balaton Regional Complex Programme (so-called 'Flagship Project').* It has fishery measures with non-economic objectives of the maintanence of natural habitats and indigenous fauna.

The **New Hungary Rural Development Plan (NHRDP)** is the plan for using the financial sources of the European Agriculture and Rural Development Fund (EARDF). Both the priorities and objectives of the NHRDP contain elements on the protection and conservation of aquatic and wetland habitats, diversification, water regulation and water management, village tourism, rural development, general development, water management and water protection, but, they have only indirect relations to the Operational Programme for Fisheries; they do not contain direct objectives to the development of the fisheries sector. The strategy of the NHRDP is laid down by the New Hungary Rural Development Strategic Plan (NHRDSP).

According to the Hungarian application of the EU supporting scheme the Operational Programmes of the NHDP, the NHRDP and the OPF are supplemented by each other. The **most important factor for ensuring the conformity is to establish the co-ordination and co-decision process during the implementation of the OPs of the NHDP, the NHRDP and the OPF**. Such an implementation system should be established that enables that the use of the rural development (EAFRD) and structural (SF) funds received by the regions could strenghten and complete each other, and they should not spoil their environmental and sustainability performances. **In order to accomplish conformity with the Operational Programmes we make the following proposals:**

Proposal 5	(1) The **experts delegated by the Managing Authorities and Consultative Bodies of the following organizations should be participate** – at least with consultative rights – in the monitoring and decision making committees of the OPF: **Environment and Energy OP** (measures on water management, renewable energy sources and environmental awareness); **NHRDP** (measures on protection of aquatic and wetland habitats, water management, village tourism, training, rural development advisory measures and LEADER-actions) and **ROPs** (measures on tourism and water management). (2) The implementation bodies of the OPF should be represented in the monitoring committees of the Regional Operational Programmes, the Environment and Energy OP and the NHRDP. (3) Guidelines should be prepared for the harmonization process of the OPF with other Operational Programmes and the NHRDP.

The most important horizontal objective of these documents – in the point of view of the Strategic Environmental Assessment – is **regional cohesion**, which is laid down both in the **NHDP and the NHRDP**. This objective suggests carrying out integrated developments in regional aspects. Regional integration is one of the main elements of the establishment of regional sustainability, as it do not only helps to keep the revenues at the place (in the given region) but also improves the co-operation and the environmental performance of the

different developments in the region. The horizontal objective of regional cohesion includes land use principles most of which are depending on sustainability considerations. **This horizontal objective is not expressed clearly in the chapter for 'Relation' of the OPF.**

Water is one of the natural resources, which shall be used under Community control and within a preferred Community framework in accordance with the principles of the NHDP and the OPEE.

Proposal 6	(1) The presentation of **traditional fishery activities and the fishery heritage** should be supported. (2) The supplementary **income facilities of fisheries production** should be made possible for the actors of agricultural production and forestry. (3) The **socially disadventaged groups** should be supported by employment possibilities during the development process of fisheries plants. (4) The **knowledge transfer of professional training** measures should be developed **in the related professions** (such as tourism, food processing, trade, agriculture and forestry). (5) The promotional campaigns and trading actions of fish producers should be supported. (6) The developments for the use or re-use waste and by-products of the plants or plant units of fishery or fish producing plants should be preferred, as the environmental burden and the use of natural resources can be reduced by them. (7) The use of geothermal energy sources in warm water aquaculture production should be preferred, as well as the fish production connected to reconstruction of water power stations.

The measures made on the **improvement of environmental performance** and the activities on water management of the ROP, OPEE and the NHRDP should be co-ordinated compliance with the measures on aquaculture developments and commercial fishing in natural waters. Within the framework of the NHRDP supports for the protection of wetland habitats the extensive fish production in fish ponds may be in conflicts wih intensive aquacultural production methods (for example protection against parasites, water-flow management); this conflict should be handled by regional co-ordination.

The compatibility between the measures of the ROPs and OPEE on **environmental awareness** and the measures taken on changing the traditions of fish consumption should be realized for increasing their efficiency. In order to improve sustainability, the measures of the OPF on the promotion of fish products should be realized by preferring domestic (freshwater) fish products.

Proposal 7	The promotion of domestic fish production should be focused on domestic (freshwater) fish species.

2.2.3. Relation to the National Environmental Programme II. and the National Waste Management Plan

National Environmental Programme

The Second National Environmental Programme[11] (NEP-II) determines the priorities and objectives of the Hungarian environmental policy for the period between 2003 and 2008. It consists such an intervention plan scheme that is based on the implementation of the guidelines laid down in the 6th Environmental Action Programme of the European Union[12], which is in force till 2010.

The objectives of the NEP-II should be realized by the implementation of different thematic action programmes that ensuring inter-sectorial integration. The OPF can contribute to the following objectives of the NEP-II:

- **The protection and conservation of the biodiversity of the fish fauna and the measures taken against the epidemic diseases of the fish fauna** (conservation of the values of the natural areas protected by national and international legal rules, the implementation of the optimal nature conservation management in areas under natural conservation, the protection and conservation of the biodiversity, the conservation of natural heritage and the substinence of the ecological systems).
- The increase of energy efficiency and the reduction of energy consumption by the implementation of **energy saving technologies and investments in the fish production**.
- The protection and the maintenance of good condition of the waters and the protection of the geological substance by the **improvement of the water quality of fish ponds, the establishment and maintenance of nature friendly land use of fisheries areas** and environment friendly use of water surfaces.
- The promotion of eco-tourism and improvement of its infrastructural conditions and the connected attutide-developing measures by supporting the multifunctional developments in the fish farming and fish-producing sector.

The establishment of new fish processing plants can result an increase of the quantity of waste water with high content of organic matter, and the quantity of biologically degradable organic matter as well. In addition, the share of dangerous components of the waste can also be increased as a result of using special auxiliary materials during the procession.

Proposal 8	The treatment of the waste water, the biologially degradable organic matters and dangerous waste should be at the best available technical level in case of developments and investments accomplished in fish processing plants.

[11] Parliament Decision No. 132/2003. (11st December) on the National Environmental Programme for the period between 2003 and 2008

[12] Decision No. 1600/2002/EC of the European Parliament and the Council of 22nd July, 2002 laying down the Sixth Environmental Action Programme ('Environment 2010: Our Future, Our Choice').

National Waste Management Plan

The National Waste Management Plan[13] (NWMP) is a complex action plan covering the entire process of waste management. The definition of the objectives and programmes of the NWMP is occurred in accordance with the elaboration of the NEP-II; the NWMP, in addition, represents the implementation plan of the Waste Management Thematic Action Plan. The NWMP – in the framework of the Biomass Programme for Agriculture and Food-Industry – declares that the disposal of biologically degradable wastes of vegetable and animal origin should be ceased in practice; thus, the entire utilization of the biologically degradable vegetable and animal waste that originated in the food industry should be reached. The utilization of the agricultural waste that contains biologically degradable organic matters should be managed in order to recycle the utilizable elements in the biological cycle. This is intended to be by working into the soil, secondary processing or compost making.

The disposal of biologically degradable animal waste should be ceased in practice, so the new waste treatment capacities such as compost making, biogas producing and utilising plants should be developed. All active and closed carcass wells and animal waste disposal sites should be liquidated. Regional selective collecting and treatment systems should be established for the utilization of the organic wastes of animal origin.

According to the regulations of the NWMP, the re-cycling ratio of the packaging waste in Hungary should have been reached a 50% share by 2005. Two years after the adoption of the NWMP in Hungary (2002), in 2004, the EU Directive on Packaging and Packaging Waste was amended (2004/12/EC). The new Directive suggests the re-cycling targets for materials contained in packaging waste. In compliance with this suggestion by the end of 2008 the following minimum re-cycling targets for materials contained in packaging waste should be attained: 60% by weight for glass, 60% by weight for paper and board, 50% by weight for metals, 22,5% by weight for plastics, 15% by weight for wood. Hungary should attain the minimum re-cycling targets laid down by the Directive by the end of 2012. The Member States shall attain the targeted levels of re-cycling (at a minimum of 50%) and re-use or recovery (at a minimum of 60%) for the total amount of packaging waste.

In case of establishment, modernization or re-construction of fish processing plants the legal building permission and licence for operation should be attached by the Applicant, which certify that the planned technologies for the treatment of wastewater and different wastes were approved by the competent authorities. The recovery of waste of biological origin should be guaranteed; and, in connection with this, the minimalising of packaging waste and the use of re-usable packaging material should be also be guaranteed.

Proposal 9	(1) The treatment and the recovery of biologically degradable organic waste produced by fish processing plants should be ensured; new technologies should be installed for the minimising of the quantity of packaging and dangerous waste. (2) The compliance with the requirements on food-processing, food-hygiene, quality assurance (ISO) and HACCP should be assured. (3) The collecting and removal of perished fish carcasses should be assured by methods without harmful effects and according to public sanitary regulations.

[13] Parliament Decision No. 110/2002. (12th December) on the National Plan for Waste Management

2.2.4.Relation to NATURA 2000 Directives

NATURA 2000 is a coherent European ecological network of natural areas with European importance. Habitats and species are regarded as with European importance, which are rare in the territory of the European Union, being perished or are typical of the natural appearance of Europe. The legal background of NATURA 2000 is determined by two Directives of the environmental protection system of the European Union:

- Council Directive 79/409 EEC (2nd April 1979.) on the conservation of wild birds;
- Council Directive 92/43 EEC (21st May 1992.) on the conservation of natural habitats of wild fauna and flora (Habitats Directive).

These Directives draw up the common objectives and measures for the Member States, but the methods of their realization should be determined according to the national rules and regulations on the basis of the different natural, environmental, social, economical and cultural circumstances.

The legal background for the designation of the Hungarian NATURA 2000 areas was determined by the amendment of the Environmental Act[14] that came into force on 16th July 2004. This amendment made authorization to the Government to create a Government Decree on the NATURA 2000 network system. In accordance with the Act on the conservation of the nature (LIII/1996. Paragraph 41/A and subparagraph a) paragraph 85) the Government has created a Government Decree on *nature conservation areas of European Community importance* (**Government Decree No. 275/2004. (8th October).** This decree was amended two years later by the **Government Decree No. 201/2006. (2nd October).** The subparagraph 2 of Paragraph 6 of the Decree take the necessary measures for the financial support co-financed by the European Union for the accomplishment of regulations regarding the land-use in NATURA 2000 areas. The list of NATURA 2000 areas in Hungary (by topographical lot numbers) were detailed in **MEW Ministry Regulation** No. 45/2006 (8th December), released in the Hungarian Official Gazette (151/2006).

Nearly 70 percent of the area of fish-breeding ponds (23 078 hectares) relevant to the Operational Programme for Fisheries are situated in Natura 2000 areas (16 000 hectares), that means additional requirements and measures for the producers connected primarily to the protection of wild birds. General priorities of the NFSPH are connected to the Natura 2000 objectives. **The priorities and objectives of the OPF are also in compliance with the Community objectives of Natura 2000 areas,** as economic growth is based upon sustainable use of the resources.

[14] Act No. LIII. 1996. on 'Nature Conservation'

2.2.5. Relation to the EU Water Framework Directive

Fishery and aquaculture are connected to the Water Framework Directive (WFD) at two areas; one of them is the quality of river basins, the other is the water management of agricultural production. In the aspects of fishery and water protection, the following rules and regulations should be taken into consideration:

- MEW Regulation No. 6/2002 (5th November) on the limiting values of pollution of surface waters used for drinking water or drinking water base and surface waters for assuring living conditions of fish and their controlling methods
- Government Decree No. 220/2004 (21st July) on certain rules of the protection of the quality of surface waters (executive decree of the Water Framework Directive)

In order to secure the adequate living conditions for the different fish species, the development and maintenance of different water bodies should be co-ordinated. In those areas where water is not only a physical form of material but also a living place, competent authorities should be designated for organizing and managing different activities and to develop a co-operation (Article 3). It is also important to promote the use of extensive production technologies and methods, so as to secure traditional means of substinence and working traditions (by the collaboration of professional associations and other communities such as civil organizations).

The use and protection of water bodies is connected to river basin districts, as a result of the configurations of the terrain the movements of water differ from the administrative boundaries in time and space.

The water areas with multi-objective use have different effects at different periods. The most harmful effects for the fish population can be reasoned by the contamination of the waters, mainly in the hatching and reproduction periods. The industrial plants working in the catchment areas can represent a permanent risk at every time of the year, but the harmful effects of water transporting methods emerge in summer and autumn periods; it means that the risks on living creatures can be both permanent and periodical.

Proposal 10	In case of heavily modified and artificial water bodies and fish ponds the provisions regarding environmental objectives laid down in the Water Framework Directive should be applied (Article 4).

The water flow is determined by river beds which can be different depending on the quantity of the water. Most of the river beds are managed all over Europe; the natural river beds are rare. Defensive installations and structures were built against flood, but in special events of water management (for example in case of inland water) additional buildings should be installed to hold the water in. In order to manage water supply it is also important to establish water storage facilities and the protection of water sources. Another important objective is to reduce pollution to a minimum level in order to keep the basic functions of water supply (e.g for drinking water supply) and the additional and supplementary functions (fish pond, wetland habitats) as well. **The maintenance of water quality is crucial in fish**

ponds in order to protect the food-chain, although it can partly endure the possible nutrition surpluses.

The **role of the pit-lakes** should be estimated, although they are not connected directly to commercial fishing, but their importance is increasing as they can give an optimal background for recreational activities such as fishing and angling. The water quality of pit-lakes, especially in urban areas can be degraded as a consequence of excessive nutrition access.

In the ecological point of view, another important objective is the **protection of backwaters**. They are not only also used for fishing and angling activities but also assure natural habitat for wild flora and fauna of high natural value. Their protection and conservation is desirable as they are unique natural relicts of Europe. The conservation of the natural heritage and the subsistence of the ecological systems is a key element of the WFD, so as the ecological condition and potential of these areas should be taken into consideration. The significant environmental effects of human activities should therefore be analyzed (Article 5). In relation to the water use all activities and interventions can affect the quality status of water bodies, and can cause heavy modification of the waters. Most of the agricultural and regional water management activities can be mentioned (e.g. fish farming in fish ponds, canalization, water regulation, flood protection and internal water protection as well) .

The impacts of human activities on water quality and ecological condition should be examined (Article 8) and the economical analysis should be carried out on water use (Article 5). The following additional aspects are suggested by the WFD:

- The principle for the recovery of the costs should be applied (Article 9)
- In addition to the recovery of direct costs of water use the environmental and resource costs should also be recovered.
- The polluter-pay-principle should be taken into consideration.
- The possible increase of demand and the investments needed should be evaluated as well.
- The recovery of the costs should be estimated with regard to the investments, environmental and storage costs, using the most efficient methods (WFD Annex III).

In case of measures related to water management the Applicants shall confirm their legitimacy, or, in case of development fish processing plants the permission of the competent authorities is needed. According to the experiences, investments in aquaculture are generally contributes to the objectives and the principles of the Water Framework Directive.

The priorities of the Plan are entirely comply with the objectives of the Water Framework Directive; the planned measures of the Programme render probable that the activities of the fisheries sector will significantly contribute to the Hungarian implementation of the Water Framework directive. In order to this, we propose to take into account the following proposals in the Programme:

Proposal 11	(1) The improvement of the **knowledge of the fishery experts on the WFD** should be supported. (2) **The limits of concentration of any pollutants should be determined for fish ponds** having legal permission for operation – **both for the supply waters and drainage** – which can be regional and special limits depending on the user; the value of these limits should be determined by the relavant authorities.

3. ASSESSMENT ON THE ENVIRONMENTAL IMPACTS OF THE NFSPH AND THE OPF

3.1. Evaluation of the situation analysis, problem analysis tree and SWOT analysis of the NFSPH in environmental aspects

The SWOT analysis of the **aquaculture (farming in fish ponds and intensive production)** sector indicates only the *Strengths* of the sector in environmental aspects. It should be supplemented by *Weaknesses* such as the low energy efficiency level of the machinery, equipment, technical devices and supplementary installments used in the fisheries sector, and by *Threats* (for example extreme water flows resulted by climate change, contamination originated in the neighbouring countries) as well.

The following elements are indicated in the Programme among the **Weaknesses of fishing activities in natural waters**: the degradation of wetland habitats, the ceasing of hatching places and fish-cradles, the sedimentation of water beds, unforeseeable contaminations and certain developments of water management which take only technical aspects into consideration. The analysis does not explore the reasons of these facts and does not make any proposals on their elimination. (Solving of these problems is not definitely financed by the OPF, but the reasons of these negative impacts and the alternative ways of accomplishment should be outlined in the OPF.) We propose to supplement the analysis by the following *Threats*: extreme water flows and flow rates resulted by climate change, contamination originated in the neighbouring countries and the environmental and economic damages caused by poaching.

In the **SWOT analysis of angling activities** the very low environmental awareness level of the populous and diverse community of anglers should be indicated among *Weaknesses*.

The extreme flows and flow rates resulted by climate change and the continuous contamination originated in the neighbouring countries should be indicated among initial reasons in the problem analysis tree. **The environmental and economic damages caused by poaching in natural waters should be indicated as a problem with prominent significance**.

In the SWOT analysis of the **fish processing industry** the non-satisfactory level of the treatment of waste water is indicated among *Weaknesses* in the Programme; this statement is not mentioned in the NFSPH, so it should be supplemented by it. This statement is acceptable, thus, the problem should be solved: the treatment of waste water should be taken into consideration in case of technical development processes of fish processing plants, the financial support of these objectives will be financed by OPF sources. The treatment of the hazardous and other wastes, which are originated in the fish processing plants, also should be taken into account. These problems should be indicated among the *Weaknesses* of the SWOT analyses of both the OPF and the NFSPH, namely the treatment

of dangerous waste is only partially solved in the fish processing plants, and the problems are the same in case of packaging waste.

Proposal 12	The general requirements should be kept in establishment of new packaging technologies to comply with the efforts on waste minimising and recycling, as it is laid down in Annex I. of the Government Decree No. 94/2002. (5th May) on *'Specific rules on packaging and the treatment of packaging waste'*.

The environmental burden of increased transporting activities – derived from the increasing production capacity and overloading of the sustainable level of local economic connections and co-operations (local sales) – should also be mentioned among *Weaknesses*.

The establishment of new fish processing plants can result an increase of the quantity of waste water with high content of organic matter and the quantity of biologically degradable organic matter; and, in addition, the share of hazardous components of the waste may also icrease as a result of using special auxiliary materials during the procession. Therefore, it should be considered definitely as a negative impact. In accordance with the above mentioned aspects we propose the following:

Proposal 13	(1) The **reasons** of the negative impacts on wetland ecosystems (i.e. foreign contaminations, climate change, poaching, over-catching) should be determined **in the SWOT analyses and problem analysis trees of 'Fisheries activities in natural waters' and 'Hungarian aquaculture'** and proposals should be taken for solving these problems within the framework of the OPF or apart from it. (2) The possible problems caused by hazardous waste of fish processing plants should be summarized and their results should be determined among the Weaknesses of the **SWOT analysis of fish processing** (i.e. the types of hazardous waste, the share compared to other waste originated during the process and the quantity of packaging waste). (3) The environmental components of the SWOT analysis and the components of problem analysis tree should be harmonized both in the Plan and the Programme.

3.2. Environmental performance of the NFSPH

3.2.1. Priorities of the NFSPH

As it was presented in Chapter 1.6.2. the priorities of The National Fisheries Strategic Plan of Hungary were examined in compliance with the aspects of sustainable development. The priorities of the NFSPH were divided into two parts: (a) global priorities and (b) general priorities.

(a) Global priorities of the National Fisheries Strategic Plan of Hungary

1. Ensuring the sustainable economic, environmental and social development of the Hungarian fisheries sector.
2. Ensuring the international competiveness of the Hungarian fisheries sector.
3. Maintaining the ability of the Hungarian fisheries sector to adapt global challenges.

(b) General priorities of the National Fisheries Strategic Plan of Hungary

1.1. Encouraging the healthy feeding of the Hungarian population by producing high quality and healthy fish; ensuring the production base and appropriate conditions of safe fish meat production.

1.2. Ensuring the long-term sustainability and competitiveness of the aquaculture sector.

1.2.1. Laying down the foundations of a structural change in the sector and multi-functional fish farming, this is responding to the challenges of the ever-changing economical and social environment.

1.2.2. Increasing the productivity and effectiveness taking the environmental protection aspects into consideration primarily by improving the technical and technological standard in the aquaculture sector.

1.2.3. Expanding the possibilities of multifunctional fish farming.

1.2.4. Expanding the possibilities of direct sales in fish producing farms.

1.2.5. Maintaining working places and improving the working and safety conditions and the salary of the employees of the aquaculture sector.

1.3. Ensuring the long-term sustainability and competitiveness of natural water fisheries in order to maintain the optimal bioplogical state of natural waters and the livelihood of fishermen and other participants of the fisheries sector.

1.3.1. Increasing the salaries and preserving the working places of fishermen of natural waters .

1.3.2. Conservation of fishing traditions and renovation and development of fishing gears and equipment without quantity expansion.

1.3.3. Slowing down the degradation of natural aquatic and wetland habitats, restocking indigenous species and reducing the overpopulation of invasive fish species .

1.4. Increasing the level of Hungarian fish consumption and facilitate healthy human nourishment this way by producing and marketing healthy fish products with high biological value; increasing the product scale and added value of the processed fish products.

1.5. Improving the competitiveness of the fish processing sector.

1.5.1. Increasing the productivity and effectiveness in the fish processing industry primarily through improving the technical and technological standard.

1.5.2. Improving the hygienic and working conditions and the salaries of the employees in fish processing plants and reducing the negative environmental impacts.

1.6. Ensuring the long-term sustainability of the Hungarian fisheries sector based on research and development activities and the formation of Producers' Organizations, in the framework of collective actions.

1.6.1. Ensuring the sustainable utilization and protection of fisheries resources.

1.6.2. Ensuring and improving the market transparency, quality, food safety and traceability of aquaculture products.

1.6.3. Developing technical skills and encouraging partnership based on common programmes between researchers and the fisheries sector.

1.6.4. Improving the standards of Producers' Organizations and increasing their number.

1.7. Increasing the domestic consumption of fish and fish products, and ensuring the harmony between supply and demand.

1.7.1. Increasing the effectiveness of Community-level marketing actions, which are based on market surveys and analyses.

1.7.2. Increasing the social acceptance of the fisheries sector.

1.8. Ensuring the competitiveness of Hungarian fish products produced in the market.

1.8.1. Introducing new and new type freshwater fish species into the domestic market.

1.8.2. Increasing the quality standard of all products of the fisheries and aquaculture sector.

1.8.3. Increasing the consumption of organic fish products coming from domestic production.

1.8.4. Developing the export market possibilities of domestic fish producers, improving their international trading connections and acknowledgement.

1.9. Improving the competitiveness of the Hungarian fisheries sector based on the practical application of national and international scientific research results.

1.9.1. Spreading production technologies and methods with more economic and biological effectiveness and less environmental impacts.

1.9.2. Laying down the scientific foundations of the diversification and multifunctionality of fish production.

1.10. Ensuring the good health conditions for the domestic fish fauna; prevention of diseases and epidemics causing extreme economic and environmental damages.

1.11. Ensuring the protection of domestic fish gene pools.

1.12. Supporting the growing role of angling as a recreational activity.

3.2.2. Determination of the value of order for sustainability

According to the principles presented in Chapter 1.6.2. we determined the value of order for sustainability for the Hungarian fisheries sector. According to those principles, the objectives and priorities of the fisheries policy should contribute to the compliance with the following:

1. Holistic, overall and general values

H1 LOCAL AND REGIONAL SUSTAINABILITY
It should contribute to **local sustainability** by handling the unique fishery and natural endowments of the country as national treasure.

H2 GLOBAL SUSTAINABILITY
It should contribute to **global sustainability**, especially in the field of prevention of the negative impacts of climatic change, conservation of biodiversity and conservation of water supply and wetland habitats.

H3 ECO-SOCIAL RURAL DEVELOPMENT, ATTRACTIVE RURAL COMMUNITIES
It should promote the improvement the quality of life in rural communities, **strenghten the retaining capacity and attractiveness of rural areas**, promote the acquaintance of rural Hungary.

H4 VALUE PROTECTING, DIVERSIFICATION OF FISH FARMING
It should promote the **preservation of rural lifestyle, the diversity of culture and traditions**, ensure the substinence of architectural, archeological, etnographical, settlement structural and landscape values, the conservation the biodiversity and the relatively good state of the environment of the rural areas.

H5 CAREFULNESS AND ALTRUISM
It should ensure the realization of the principle of 'diligence of the good keeper' without hurting the values and interests of other different communities (for example the neighbourings of the affected region) and **it could not result the increase of regional differences**.

H6 ETHICAL BEHAVIOUR
It should promote the production of healthy, safe and traceable products, animal welfare activities and the establishment of the framework of **fair production and trade**.

H7 CONSCIOUS FOOD PRODUCTION AND CONSUMPTION
It should promote the improvement of consumers' behaviour regarding food products and the spreading of **the sustainable consumption patterns and the principles of environmentally conscious production and consumption**.

2. Environmental and natural aspects and criteria

K1 NATURE CONSERVATING FISH FARMING
It should definitely support the conservation of natural values, biodiversity and the flora and fauna of wetland habitats.

K2 ORGANIC FISH FARMING
The resource demand and the use of environment should take into account the **limited capacity for maintenance** and the local natural endowments in the course of fish farming activities, water use and landscape use.

K3 PREVENTION AND MINIMISING OF POLLUTION
It makes efforts for the **prevention of the emission of different pollutants and wastes**, or, where it is not possible, for minimising those emissions.

K4 MINIMISING FURTHER NEGATIVE IMPACTS
It should not lead to trade-offs between the different environmental media.

K5 DEMATERIALIZATION
The amount of the used **industrial raw materials** (for example fertilisers and other agrochemical materials) the quantity of the non-renewable energy resources, and, in addition, their **storage and transportation demands should be minimised**.

K6 RE-CYCLING AND RE-USE
The measures should promote the recycling and re-utilization of **agricultural and food processing by-products.**

K7 ECONOMICAL USE OF EXHAUSTING RESOURCES
The use of **non-renewable** natural resources and vital elements should be minimised.

K8 VALUE PROTECTING FISH FARMING METHODS BY USING RENEWABLE RESOURCES
The stocks, the state and the self-regulating capacity of **conditionally renewable** natural resources should be maintained and they should be used by taking their renewal capacity and rate into account.

K9 SECTORIAL INTEGRATION
It should promote the realization of sustainable water management, multifunctional agriculture and ecological landscape management approach.

3. Economic aspects and criteria

G1 PROSPERING RURAL ECONOMY
It should promote farming results with high value added, the reduction of the lack of capital in the fisheries sector, the **stability of farming** and the calculableness of farming activities.

G2 INTEGRATED PRODUCT POLICY
It should promote the realization of the integrated product policy by the changes of production and consumption patterns, and, it should change from the **material- and energy-intensive products and services towards the material- and energy-saving, knowledge- and culture-based production and consumption methods**.

G3 'PRODUCE IN PLACE, CONSUME IN PLACE'
It should promote the **access to local markets**, the autharchy at community-level, and the support of the local food production, procession and trade.

G4 'WORK IN PLACE'
It should promote **local employment, development of local small and medium enterprises**, spreading of family farming and small community farming forms, support the rural mode of life and living forms and possibilities based on traditions.

G5 QUALITY PRODUCTS, INNOVATIONS
It should promote innovation in fishing and fish production, spreading **innovative fishing and fish farming technologies and the quality fish production**.

G6 DIVERSIFIED RURAL PRODUCT SUPPLY
It should promote the manufacturing of products with **special marketing possibilities and unique quality** (e. g. organic products, Hungaricums, products of special geographical origin, or special regional products)

G7 REGIONAL CO-OPERATIONS FOR PRODUCTION
It should strenghten the **development of product-processing chains within the regions and settlements** and the improvement the marketing and trading relationship between farmers and producers.

4. Social aspects and criteria

T1 LOCAL ECO-SOCIAL INTERESTS AND SOCIAL RESPONSIBILITY
It should ensure that the use of resources occurs under responsible conditions and serves the **interests of local communities**.

T2 SOCIAL JUSTICE AND COHESION
It should contribute to the improvement of the living circumstances of the rural population, the **combat against poverty** and the closing up of socially disadvantageous groups.

T3 KNOWLEDGE-BASED RURAL DEVELOPMENT
It should promote the **training and access to information and the knowledge of those in working in the fisheries sector**, the establishment of local intellectual capacity and the establishment of services supporting fishing and fish farming activities.

T4 SOLIDARITY AND REGIONAL COHESION
It should promote the **recognition of the interdependence** of fish producers and the consumers as well as the improvement of the relationship between farmers, fisheries communities and local society.

T5 INTERGENERATIONAL EQUITY AND SOCIAL EQUALITY
The protection and **economical use of resources that keeps long-term aspects** in view should be implemented in such a way where the equal opportunities for women, children, elderly and handicapped people should be ensured.

T6 SOCIAL PARTICIPATION
It should promote the participation of fisheries communities and the affected local communities, **in professional organizations and non-governmental organizations in decision making processes**, support self-organizing activities and the development of the rural civil society.

3.2.3. Evaluation of the general priorities compared to the value of order for sustainability

The sustainability evaluation matrix is presented in Annex I. (We did not apply the methodology for global priorities, as their definition was too general.) This evaluation does not serve for the general judgement of the priorities, but – in accordance with the original, proposal-making features of the SEA - it draws attention to sustainability aspects (elements of the value of order for sustainability) where these aspects should be stressed in a more definite way. The evaluation of the priorities was carried out according to the knowledge and information available during the elaboration process of the SEA. We stress the importance of the need for additional evaluations at scientific level, mainly for the confirmation of our 'negative conclusions'. **Our results serve as a comparison of different priorities and they intend to draw attention to the fact that the sustainability-compliance of certain priorities should be ensured by additional conditions.**

The most important conclusions of the evaluation are the following:

- The **global priorities of the NFSPH are in compliance with the national principles of sustainable development**, but it shall be stated that their judgement can be difficult because of its general statements.
- The **realization of sustainable development of the domestic fisheries sector is ensured by certain priorities of the Plan** (see the next proposal).

Proposal 14	We propose that the following priorities **should be strenghtened** during the implementation process of the OPF: - 1.3.3. Slowing down the degradation of natural aquatic and wetland habitats, restocking indigenous species and reducing the overpopulation of invasive fish species . - 1.6.1. Ensuring the sustainable utilization and protection of fisheries resources. - 1.6.3. Developing technical skills and encouraging partnership based on common programmes between researchers and the fisheries sector. - 1.7.2. Increasing the social acceptance of the fisheries sector. - 1.8.3. Increasing the consumption of organic fish products coming from domestic production. - 1.9.2. Laying down the scientific foundations of the diversification and multifunctionality of fish production. - 1.11. Ensuring the protection of domestic fish gene pools.

- In case of some priorities – regarding the value of order for sustainability – **sustainability received weak or uncertain results** (see the next proposal).

Proposal 15	We propose the introduction and use of **target-specific sustainability indicators** for the following objectives during the implementation process of the OPF: - 1.2.4. Expanding the possibilities of direct sales in fish producing farms. - 1.4. Increasing the level of Hungarian fish consumption and facilitate healthy human nourishment this way by producing and marketing healthy fish products with high biological value; increasing the product scale and added value of the processed fish products. - 1.5.1. Increasing the productivity and effectiveness in the fish processing industry primarily through improving the technical and technological standard. - 1.8.1. Introducing new and new type freshwater fish species into the domestic market.

- According to our examination it can be stated that **all the priorities are in compliance with the conditions of sustainable development**, but the performance of the NFSPH and the OPF in terms of sustainability can be improved by the proposals mentioned above.

3.3. Environmental performance of the OPF

3.3.1. Environmental evaluation of the measures of the OPF

Chapter 3 of the Programme contains the information and the proposed measures connected to the different priority axes. These measures should be considered as more concrete tools of the Programme, so they are examined by an environmental evaluation matrix (see Annex II). The environmental evaluation differentiates several types of the OPF measures:

- The first type includes such measures that were evaluated in unchanged form during the evaluation process, i.e. they were in the same form in the evaluation matrix of environmental performance and in the OPF as well.
- The second type includes such measures that we had to break up into 'submeasures' in order to be evaluated in environmental terms, since they could not (or not clearly) be evaluated according to the original methodology of the Programme. For example, the measures '2.1. Aquaculture' of the Priority axis 2, contain several (and in environmental aspect very diverse) submeasures – like establishment or re-construction of fish ponds and their structures, developments of the infrastructure, purchasing transportation vehicles etc. They cannot be evaluated together since their environmental judgement may be totally different. In such cases, therefore, the evaluation occurred by dividing into submeasures; namely in case of '2.1 Aquaculture' the measures were broken up to submeasures from a) to e) during the evaluation process.

The Environmental evaluation matrix is attached in Annex II. Additional comments on the evaluation are presented in the following.

PRIORITY AXIS 2: AQUACULTURE, INLAND FISHING, PROCESSING AND MARKETING FISHERIES AND AQUACULTURE PRODUCTS

2.1.a. Aquaculture (construction of new capacities of fish production and storage)

This submeasure received mostly positive judgements in most of the evaluation cathegories, it received slightly negative (-1) judgement only for the emissions into the air as a consequence of air emissions during the construction. Owing to the puffering and self-purifying nature of lakes and ponds, the impacts on the other environmental elements are positive; furthermore, the water surfaces can assure valueable living places and habitats for the living creatures. For three aspects (for example in terms of the environmental quality of settlements), the judgement is non-relevant (NR). On the whole, this measure finished with a significantly positive overall judgement in environmental terms.

Proposal 16	We propose to perform an **environmental impact assessment** – in accordance with the Government Decree No. 314/2005 – before the construction of new fish ponds in order to fully comply with environmental aspects.

2.1.b. Aquaculture (value added reconstruction and modernization of capacities of fish production and storage)

This submeasure is similar to the 2.1.a) submeasure, but the slightly different results of its judgement derived from the fact, that this measure is connected to the reconstruction or modernisation of systems which are operating at the present. Thus, the emissions into the air may be at a lower level during the reconstruction, or, as a consequence of the renovation of wetland habitats, the protection level of such areas may be improved. These aspects, therefore, received better grades when compared to 2.1.a) submeasure. Besides three non-relevant (NR) and two neutral (0) judgements this submeasure received only positive

judgements, so, **on the whole, it can also be considered as definitely favourable in environmental terms**.

2.1.c. Aquaculture (investments on equipment for fish production and transportation)

Due to its features this submeasure cannot be connected to most of the aspects of environmental evaluation, thus, it received many non-relevant (NR) judgements. But, in the remaining cathegories it received slightly negative (-1) judgements as derived from the characteristics of purchasing and operating vehicles. Nevertheless, it should be stated that purchasing of vehicles and machinery used for the production and transportation of fish – in environmental terms – may have also positive effects, as the change of aged machinery can result the decrease of negative environmental effects. On the contrary, in case of the improvement of food safety, the submeasure received a slightly positive (+1) judgement as a consequence of transportation under cold and satisfactory hygienic conditions. Although, in overall, **the aggregated judgement of this submeasure is negative, but its real effects – as a consequence of the probably small volumen of purchasing vehicles and machinery – may have a smaller environmental relevance.**

2.1.d. Aquaculture (establishment and development of the infrastructure in fish farms)

This submeasure received relevant judgements at the half of the evaluation aspects. The judgement of the cathegory of local air pollution was slightly negative (-1), but in other cases (such as better drainage conditions, drainage and treatment of rainwater) the impacts on surface waters and groundwater were definitely positive, so this measure received a very positive (+2) judgement. In some cases (for example at global air pollution, or impacts on the soil) the impacts were neutral (0), thus, on the whole, the judgement of this measure is slightly-medium positive in environmental terms.

2.1.e. Aquaculture: Animal health measures (diagnostics)

This submeasure enables the determination of different fish diseases by diagnostic methods, so due to its features the submeasure received non-relevant (NR) judgements in several aspects. But, in case of micro-biological hazards and food safety it has definitely positive impacts in the prevention of epidemic diseases, therefore in these aspects it received the maximum scores (+2). Due to additional impacts of the preservative features of the submeasure (preserving fish destruction) the judgement of the remaining aspects are slightly positive (+1), thus, in overall, this submeasure can be evaluated very positively, although its relevance is not significant in environmental terms

2.2.a. Inland fishing (purchasing and reconstruction of fisheries equipment and fishing gears: fishing boats and vessels, freezing apparatus, trailer)

Due to the result of purchasing and installation of fisheries equipment, the judgement of this submeasure was slightly negative (-1) for example in aspects of global air pollution and the quality of surface waters; but in several cases the judgement is non-relevant (NR). Although, the submeasure in some aspects (e.g. food safety, as a consequence of the quick and cool transportation of the catched fish, or reducing chemical and biological risks)

received very positive judgement (+2). On the whole, this submeasure can be characterized by close to the neutral, slightly positive environmental performance.

2.2.b. Inland fishing (purchasing equipment and appliances for the improvement of spawning conditions and reproduction)

Due to its features this submeasure received non-relevant (NR) judgements in most of the evaluation aspects, thus, it has a smaller environmental relevance. In the remaining four aspects (such as organic farming, sustainable regional farming methods) it received slightly positive (+1) judgements.

2.2.c. Inland fishing (conservation and promotion of fisheries traditions, educational activities)

This submeasure is very similar to the former one, as the number of non-relevant (NR) judgements is very high, since the activities of this measure need energy and material consumption just at a minimum level. But, due to its main objectives it received very positive (+2) judgements in four of the remaining aspects (for example in the conservation of cultural heritage, improvement of the environmental awareness of the population and the promotion of organic and sustainable farming methods), so, in the whole the environmental performance of the submeasure can be considered as very positive.

2.3.a. Investments in fish processing and marketing (building, reconstruction and modernization of fish processing plants)

As this submeasure is connected to the technical developments in infrastructure, it effects activities with high energy and material use both in the periods of installation and operation. Due to this effects it received a slightly negative (-1) judgement in most of the environmental aspects, except for the case of protection of surface waters, where it received the minimum score (-2) as a result of waste water emission. In some cathegories such as quality of settlements, food safety, sustainable regional farming methods, the judgement of the measure was slightly positive (+1). Due to the non-relevant (NR) judgements, the submeasure can be considered as slightly negative, but mainly neutral, in overall.

2.3.b. Investments in fish processing and marketing (measures on animal welfare, hygiene, public sanitary conditions and food safety)

In this submeasure two-third of the evaluation cathegories received non-relevant (NR) judgements, but it has slightly positive impacts (+1) which are to be assumed in air protection aspects (reducing odour emissions). The judgement on the aspects of organic farming and and sustainable consumers' behaviour is also slightly positive. In case of health protection and food safety, and in reducing chemical and biological risks the judgements of this submeasure are very positive (+2) as these are among the main objectives of the proposed measures. On the whole, this submeasure should be characterized as very positive in environmental terms.

2.3.c. Investments in fish processing and marketing (development and production of new products and product lines)

Due to its features the submeasure received non-relevant (NR) judgement in more than the half of the aspects of the evaluation. It received very positive (+2) judgement in the cathegories of reducing the chemical and biological risks, health prevention, food safety and the improvement of the sustainable consumers' behaviour of the population. It received slightly negative (-1) judgement at the same time, in the aspect of the reduction of material and energy use, as a result of the main characteristics of the measure; but, on the whole it can be considered as fairly positive in environmental terms.

PRIORITY AXIS 3: COLLECTIVE ACTIONS

3.3.a. Collective actions (improving the competitiveness or the sustainability of the sector, based on research and development activities)

The submeasure was considered in almost two-third of the evaluation aspects as non-relevant, in the cathegories of environmental elements, environmental quality of settlements and the protection of the landscape cultural heritage. Nevertheless, in all the remaining cathegories the measure received slightly positive (+1) judgements, for example in the aspects of areas under protection, ecological and regional farming methods and food safety.

3.3.b. Collective actions (creating the network of technology transfer)

In this submeasure, the judgement was non-relevant (NR) in more than the half of the evaluation cathegories, mainly in case of environmental elements. On the contrary, however, it received slightly positive (+1) judgements in the rest of the remaining aspects, for example in case of the areas under protection, ecologiocal and regional farming methods, reducing chemical risks, food safety.

3.3.c. Collective actions (creating specific database for market information, establishing Producers' Organizations)

This submeasure – as a result of its mainly organizational and administrative features – can be judged only in three aspects, in all the remaining cathegories received a non-relevant (NR) judgement. In cathegories which were judged by scores, it reached very good results: in the aspect of ecological and regional farming methods it received a significantly positive (+2) judgement, and in case of food safety it can be considered as fairly positive (+1).

3.4.a. Development of new markets and promotion campaigns (launching measures for encouraging the consumption of fisheries and aquaculture products and improving the image of the fisheries sector, introducing new fish species into the market, production and qualification of organic products)

This submeasure wish to influence on the consumers, so it received non-relevant (NR) judgements in the environmental aspects at more than the half of the evaluation cathegories. But, in most of the remaining cathegories it received significantly positive (+2) judgements (for example in ecological and regional farming methods, improving sustainable consumers' behaviour and environmental awareness of the population). In the other evaluation

cathegories (reducing chemical and boiological risks, improving food safety) the evaluation resulted a slightly positive (+1) impact; thus, on the whole, this submeasure can be considered as a fairly favourable one.

Proposal 17	We propose the realization of the principle 'Produce in place, consume in place' which may promote the fish consumption based on locally produced fish and fish products.

3.4.b. Development of new markets and promotion campaigns (development of quality assurance, quality certifications, standards; conducting market surveys)

This submeasure – on account of its mainly organizational and administrative features – received non-relevant (NR) judgements in most of the evaluated aspects. However, in the remaining cathegories (for example ecological and regional farming methods, improving food safety and reducing chemical risks) it was evaluated by significantly positive (+2) judgements, thus, in overall evaluation it can be considered as a significantly positive submeasure in environmental terms.

3.5. Pilot projects (applying the result of scientific researches, alternative methods for fish production in fish ponds, reducing negative environmental impacts)

In this measure the judgements were non-relevant (NR) in more than the two-third of the evaluation cathegories, mainly in the case of environmental elements; but in two cases – at different types of areas under natural protection – the impacts were uncertain, so they could not be judged. (It is marked in the evaluation matrix by the sign ('?'), as it could have been evaluated only by the results of concrete projects.) On the contrary, in case of the remaining, more general aspects, the submeasure received slightly positive (+1) judgements, moreover, in the cathegory of sustainable regional farming it received the maximum score (+2). Thus, in overall the judgement of this measure is positive.

PRIORITY AXIS 5: TECHNICAL ASSISTANCE

3.3.1. Tenders, project-generating, professional reports, exchange of experience, improving environmental awareness

Due to its features this measure is non-relevant (NR) in aspects of environmental elements, areas under protection or environmental quality of settlements, but, in all of the remaining cathegories it received slightly positive (+1) judgements. And, in addition, the improving the environmental awareness of the population which is the most important objective of this measure, received the maximum score (+2).

3.3.2. Identification of measures with significant importance or uncertain effects

The following measures have **significant importance** in the aspects of the environmental integration of the fisheries policy:

- 2.2.c Inland fishing (conservation and promotion of fisheries traditions, educational activities)

- 3.3.c Collective actions (creating specific database for market information, establishing Producers' Organizations)
- 3.4.a Development of new markets and promotion campaigns (launching measures for encouraging the consumption of fisheries and aquaculture products and improving the image of the fisheries sector, introducing new fish species into the market, production and qualification of organic products)
- 3.4.b Development of new markets and promotion campaigns (development of quality assurance, quality certifications, standards; conducting market surveys)

In case of the following measures the evaluation resulted **slightly negative, uncertain environmental effects**:

- 2.1.c. Aquaculture (investments on equipment for fish production and transportation)
- 2.2.a. Inland fishing (purchasing and reconstruction of fisheries equipment and fishing gears: fishing boats and vessels, freezing apparatus, trailer)
- 2.3.a. Investments in fish processing and marketing (building and reconstruction of fish processing plants)

In order to reduce uncertainity we propose the following:

Proposal 18	A study should be completed on the possible environmental-friendly techical and technological development of the enterprises of the fisheries sector.
Proposal 19	**The use of equipment and technologies with reduced material and energy use** should be preferred at the purchasing of fisheries equipment and in the development process of physical infrastructure. Using energy saving technological methods in fish processing, the increase of energy efficiency and the installation of solar- and geothermal energy systems and windpower systems should be supported.

3.4. Possible environmental impacts connected to the implementation process of the OPF

3.4.1. Impacts on air

The quality of air was examined and evaluated by the assessment in two cathegories:

- 'classic' or local air pollution or change of air pollution (e.g. NO_x, CO, CH, PM etc.), or
- contribution to the global air pollution (greenhouse gas emissions).

The impacts of the measures of the OPF on the air can be considered as neutral, there are no significant impacts in its different dimensions; in principle, a 'generated' negative impact can be expected, but, it may be under perceptibility level.

In the predominantly administrative, organizational and marketing measures of Priority axes 3 and 5, the impacts on air pollution are regarded as 'non-relevant' in both cathegories. In most of the measures of Priority axis 2 the results on air pollution are also in the 'non-relevant' cathegories, meanwhile in cathegories evaluated by grades most of the results

were neutral (0) and slightly negative (-1). Air pollution effects can be derived from the development of machinery or vehicles (e.g. purchasing vehicles for transportation of fish, vessels etc.) or during the construction, reconstruction or operating fish ponds as a consequence of electric energy use. However, in accordance with the above-mentioned conclusions it can be stated that the operation and use of machinery, transportation vehicles, vessels, cooling plants and other equipment that may have effects on air in the domestic fisheries sector will not influence the quality of air significantly. In certain areas, slightly positive impacts can be expected, for example by the modernization of fish processing plants, when reduction of odour emission can represent significant positive impacts on the environment.

3.4.2. Impacts on surface waters, groundwater and the soil

The fish production in fish ponds is the dominant production method in the Hungarian fisheries sector. In environmental aspects these ponds are more endangered than the natural waters used for fishing activities.

The construction of fish ponds needs an overall planning process. Beyond the specific knowledge on water management, the quality of water should also be taken into consideration by such additional aspects such as water traceability. The overall hidro-ecological information on the water sources of the fish pond should also be collected and evaluated. The storaged water should not contain materials that can be dissolved through the storage period, to avoid oxygen absorption or toxic effects.

The quality of water has a greater importance during the filling period, in order to comply with the conditions of the future fish production. After the breeding period, the water quality of the water bodies should be improved by new filling quantities, in order to maintain natural capability for regeneration.

The reintegration of technologic water quantities into the water body can result an ecological burden within a short period, which can result positive, neutral and negative effects, depending on the quantity of the water.

Applying the appropriate and economic fish feeding techniques, the emission of water pollutants is not significant. Thus, **fish feeding techniques do not have significant effects on water quality**.

As a consequence of alterations of surface waters – after the longer or shorter summer droughts – the nutrition replacement in wetland habitats may be conducted by a close co-operation of nature conservationists and fish producers. The formation of optimal residences for wintering birds may be managed within the framework of these measures.

The water stored in fish ponds may cause drainage as a result of differences of water pressure. The physical aspects of the geological stratum of the bottom of the pond is important in point of permeability, therefore an appropriate aquifer layer should be established.

The criteria of **good quantitative status of groundwater** are determined by the Water Framework Directive:

'The level of groundwater in the groundwater body is such that the available groundwater resource is not exceeded by the long-term annual average rate of abstraction.

Accordingly, the level of groundwater is not subject to anthropogenic alterations such as would result in:

- *failure to achieve the environmental objectives specified under Article 4 for associated surface waters,*
- *any significant diminution in the status of such waters,*
- *any significant damage to terrestrial ecosystems which depend directly on the groundwater body.*

Additionally, alterations to flow direction resulting from level changes may occur temporarily, or continuously in a spatially limited area, but such reversals do not cause saltwater or other intrusions, and do not indicate a sustained and clearly identified anthropogenically induced trend in flow direction likely to result such intrusions.'

The implementation of the OPF may assure the harmonic environmental conditions, but the knowledge on hydrogeological information and conditions of the fish ponds should be ensured.

In areas where the salinity level of the soil in the neighbouring areas of fish ponds is not high, there – as a consequence of capillary water alterations – the secondary accumulation of salt content, or salinification of the soil will not be occured. The soil layers which were excavated during the reconstruction of fish ponds with the benthos emerged on it may serve as a good nutrition source Regarding that these nutrients will be deteriorated within 2-3 years, and the reconstruction of fish ponds can be executed 15-20 yearly, this way of nutrition replacement shall be considered as periodical. Nevertheless, the well-planned and well-managed reconstruction process may give a 'gratis' nutrition replacement possibility to the producers.

In accordance with the requirements of the WFD we propose the following:

Proposal 20	The local harmonization of flood protection, fishing activities and rural development activities should be assured by using complex rural environmental farming methods.

3.4.3. Impacts connected to the consequences of climate change

Water-stock management – i. e. the management of the water resources – should be organized with considerable interest. The consequences of climate change may reach such level that in certain regions the formerly used technologies and methods should be changed or modified partially.

The increasing temperature and the earlier appearance of days with higher average temperature may cause the more intensive use of water stocks. As a consequence of this the following measures should be taken:

- The water-stocks should be supplemented and the possible lack of water should be ceased.
- Additional reservoirs should be established.

The oxygen supply has greater importance for fish breeded in fish-ponds. The **increasing temperature – as a consequence of climate change – may lead to the loss of oxygen supply**, therefore the role of aeration may increase in the future. At the present mainly local equipment and technical devices are used for the purposes of aeration, but it should be managed at regional level in the future, so as to use more water surface for the replacement of oxygen supply.

In closed intensive fish production systems and production technologies using geothermal water, the maintenance of the optimal living conditions (by using recirculating systems and effluent treatment techiques) has greater importance; the good level of oxygen utilization should be secured even by applying ad-libitum feeding techniques. The role of the exogene factors can be changed, i.e. the quantity of geothermal water for keeping the same temperature is decreasing, but the quantity of water used for rinsing out the tanks is increasing. Thus, the replacement of the groundwater should be assured in order to maintain the appropriate capacity. The climate change, therefore, may have favourable effects, since in this case the need of geothermal water is decreasing, thus, the environmental burden may be also reduced.

3.4.4. Impacts on areas under natural protection, Environmentally Sensitive Areas , Natura 2000 areas and forests

9,4% of Hungary's territory, 874 440 hectares of land is under natural protection. In accordance with the European Union's directives 467 special nature conservation areas (1,4 million hectares) and 55 special areas for protection of wild birds (1,38 million hectares) were indicated. As a result of overlapping of nature conservation areas and areas for the protection of wild birds the overall area is 1,96 million hectares in total, that represents 21% of the total area of the country (EU average is 20%).

83% of the country's territory is cultivated land; the most important renewable resource is the soil. 63% of the total cultivated land is used for agricultural production, 20% is cultivated by the forestry sector. The main users of the landscape are, therefore, agriculture and forestry, the total land of areas under protection, environmentally sensitive areas and Natura 2000 areas exceed a total of 3 million hectares. This area represents one-third of the total land and one-half of total cultivated land. In Hungary, there is a special common feature of areas under protection, environmentally sensitive areas and Natura 2000 areas, namely they should be cultivated at a special, considerate level. Thus, nature conservation aspects and agricultural production should be harmonized in order to protect natural values; this harmony should be established by the introduction of the so-called agri-environmental management

methods. The essence of these agri-environmental measures is the integration between agricultural production and nature conservation; the environmental and nature conservation aspects are integrated into the use of natural resources, in this case, into fishing and fish production.

Freshwater fish production has centuries-old traditions in Hungary. The role of fish ponds has a great importance in the conservation of aquatic and wetland habitats. The fish production shall be managed by such methods, which can assure perfect living conditions for all protected populations of the wetland habitats. The fact that fish ponds and fish pond-systems shall ensure appropriate living, nesting, feeding and reproducing possibilities for wild birds and other protected animal species should also be taken into consideration.

According to the results of the evaluation matrixes the priorities and objectives of the Plan and the Programme have favourable effects on the conservation of areas under natural protection, environmentally sensitive areas and Natura 2000 areas. Nevertheless, the **nature conservation functions and measures of the fishing activities should also be applied not only in Natura 2000 areas but also in environtally sensitive areas (ESA), areas of ecologic corridors and in all areas under natural protection.** In order to comply with these conditions we propose the following:

Proposal 21	In fish ponds which are situated in protected, sensitive or Natura 2000 areas the fish production should be managed by extensive methods, these activities should be supported prominently. In accordance with the principles laid down in NFSPH we propose to establish new aspects for the conservation of habitats of those species, which are living in the neighbourings of fish ponds with extensive production and – by their feeding and nesting habits – may cause conflicts.

In our opinion, researches should be started in order to explore and evaluate the impacts of fishing and fish production on the protected species of animals, and on the impacts of climate change in particular.

3.4.5. Impacts on biodiversity

Wetland habitats are not only one of the most important and valuable habitats in biodiversity conservation aspects, but also those with the highest risks. In order to avoid the unfavourable impacts on biodiversity the following measures should be taken:

- The stocking of new fish species, which are non-native in Hungary, should be restricted by legal rules, in order to decrease the probable harmful impacts on the domestic natural waters.
- Special methods should be developed for the removal of invasive fish species from the domestic natural waters.
- The conditions for the healthy fish fauna and the conservation of biodiversity should be ensured in domestic natural waters.

Measures of the Plan and the Programme connected to extensive fish production in fish ponds may have positive effects on the conservation of wetland habitats and the protection of biodiversity.

3.4.6. Impacts on human health and quality of life

The measures of the NFSPH and the OPF may contribute to the human health and quality of life in several aspects. One of the most important effects to be reached is **increasing of domestic consumption of fish and fish products**, since fish meat is one of the healthiest food which contains many nutrients, it has good features of digestibility as a consequence of its special content of proteins and fat acids. As it is generally known, the consumption of these food products helps to avoid the diseases of the heart and vascular system, or decreases the risk of these diseases. The safe production and trade of fish and fish products can help to decrease these health risks.

The extension of the range of products contributes positively to the quality of life at culinary level, but the importance of gastronomic traditions should also be mentioned which can be a base of different programmes with touristic importance (for example fish soup competitions, etc.). A special **indirect effect is also derived from the measures, namely, recreational angling, which is one of the most popular recreational activities in Hungary**. The Hungarian waters used for angling can provide recreational possibilities for 320 000 anglers and their families.

The proposed measures have another indirect effect: the **sustainable management and operation of fish ponds can contribute to the maintenance of the healthier living circumstances and the environment** as well; the positive effects of fish ponds on the landscape should also be considered. Fish ponds can be used for the environment-friendly utilization of organic manure originated in the animal husbandry, so as to avoid the negative impacts on the environment and human health derived from the release of manures. The advantageous climatic effects in the neighbourings of fish ponds may contribute to the quality of life by creating healthier living conditions.

Proposal 22	Previous to the release of manures of animal origin into fish ponds – in accordance with the objectives to prevent chemical and biological risks – the elaboration of a study on the evaluation and the management of possible risks is suggested.

3.4.7. Impacts of possible environmental risks

Water, as a natural habitat, plays an important role in conservation of biodiversity. The more diverse the natural fauna is, the more diverse the composition of fish species. It may result the formation of a higher fish pyramid (at the present the vast majority of the production is given by species which are on a lower level of the food chain), which can be considered advantagous regarding the healthy and resistent progeny.

The **conditions of living space** have great importance in possible environmental conflicts. Healthy and resistent progeny can only be reproduced by fish colonies of good quality and waters with high nutrition level. In case of optimal conditions, the conflicts can be

avoided or decreased, by good management methods; for example the risks can be reduced when interventions (such as dredging or building dykes) are not taken during the spawning period.

In case of **chemical contamination** of waters, the situation is different. A small-scale oil contamination may not cause considerable damage, but small-scale contamination for a longer period will cause serious consequences (for example in summer period, when the oxygen demand of the fish stock is increased).

Havaria-type contaminations may cause serious effects. (Havaria is an unexpected and non intended event, resulted by the human activity, which endangers the human health or the environment.) The cyanide-contamination of the River Tisza in 2000 brought serious effects on the existence of the fishermen of the region. The inhabitants of the region and the whole public were shocked by the consequences of this event. The contamination of the river Rába may threaten by an environmental conflict. It cannot be considered as a Havaria-type event, it is a contamination that last for a longer period, but it is also resulted by human activity. It caused a significant deterioration of water quality and changes of the physical features of the water (changes in the colour and decrease of transparency).

The building of special structures may also induce conflicts, although they may have physically verified strenghts, but may change the natural habitats of certain species (for example the building of a barriage dam). In order to avoid the damages in such cases, the former natural state should be conserved.

3.4.8. Impacts on land use and the spatial structure

Land use and spatial structure have importance mainly in terms of landscape diversity and the ecological stability of the landscape. The diversity of the landscape and the multifunctional land use should be considered favourably, as it enhances the possibilities of inter-relationship. **In summary, the implementation of the OPF may have beneficial impacts on land use and spatial structure.**

In Hungary, at the present, a still existing function of **land use** is to establish a mosaic pattern against the monotony of agricultural areas. It is supported by constructing fish ponds, but, on the contrary, an unsuitably planned water surface may cause significant changes (or damages) in the enviroment and on the landscape. Therefore, it is desirable to fit the changes in land-use directly to the local or regional settlement plans, not to their modifications.

The connections made between natural land use patches have actively beneficial impacts on **spatial structure**. In the course of planning and construction of water surfaces several aspects should be taken into account, such as fitting into ecological corridors, eliminating of ecologic barriers of wetland species and the development of corridors between the habitats. Waterfront habitats as the location of the fishing activities in natural waters are in common property; they are key elements of the flow of energy and materials of the environment. The establishment of any kind of ecological barriers around them would cause adverse effects (except for protection against causing damage) therefore they should be

excluded from the supports; those who does not apply such methods would be preferred at any cases.

The symmetrical boundaries of artificial water surfaces and the symmetrical morphologic features of their establishments may damage the **appearance of landscape** despite improving diversity, in general. This situation may be improved by the formation of ponds and reservoirs with natural-alike coastline, with non-linear boundaries, indented by creeks and islands, or, by establishing living habitats. These places may also have touristic attraction. The additional costs of their establishment should be determined in the Programme. In order to **reduce the negative impacts on land use and spatial structure** we propose the following:

Proposal 23.	(1) The construction of **natural-alike fish ponds** or reservoirs and developments **fitting into the ecological system** should be preferred. (2) Supports should not be given for the establishment of fencing around natural waters, as the fencing for property protection should be realized in the scope of aquaculture measures, infrastructure development. (3) It is suggested, that prior to starting new projects for constructing fish ponds, a **strategic environmental assessment** should be carried out in addition to the evaluation of environmental performance, for its significant effects on water management and landscape changes, in cases where the total area of the established water surface exceeds 300 hectares in the given region in a 7 year period.

3.4.9. Impacts on landscape management, renewable resources and organic farming

In Hungary, the role of fishing activities on landscape management is not significant. The demand of the fish production on vegetable products is very low; it should be nearly neglected when compared to the agricultural production level of different regions. Fish meat production has a very special segment of demand in the market, so it has no direct effects on the landscape. It may determine the landscape by its water storage functions, but it has no significant effects on environmental and landscape potential.

The evaporation processes of greater water surfaces may have mezoclimatic effects, which improve the **regeneration of natural resources**, as it can develop advantageous ecological conditions for the flora of the neighbouring areas. Some part of the water body of fish ponds moves toward by lateral seepage which means expressive sources of water for the vegetation. This process may also have favourable effects on the water supply of wetland habitats. Besides the seepage processes the surface water flow (i.e the water source that supplies the fish pond) and the stored water body can also influence the conservation of the diverse and unique habitats and their regeneration process.

In case of developments in **eco-tourism** (improving attractiveness) and **nature conservation** (developing and reconstructing unique landscape values, presentation of nature conservation areas), either the owners of the waterfronts and water bodies or the performers of fisheries activities (i.e. the beneficiaries of the OPF) should be enforced to be in active co-operation or to be initiative at these projects. The **presentation of traditional fishing activities and its cultural heritage** is an efficient supplementary tool for initiations

of water tourism and angling tourism; it also give additional income opportunities for those working in the fisheries sector. The possible support for these activities should be indicated in the OPF not only among the objectives, but also in the form of concrete measures. These fisheries developments are also indicated in the Lake Balaton Regional Complex Programme that is connected to the NHDP.

The role of the fisheries and aquaculture sector in the rural economy, income production and economic diversification can be improved significantly by the implementation of the measures of the OPF. In addition, **additional support of fishery activities** should be allocated for producers working in the forestry ot agriculture. Consequently, the support of development and training in case of small-scale fish ponds (under 10 hectares) should be proposed. The products of the fisheries activites may expand the supply of the village tourism (attractions, angling, catering), and the trade in the local market may expand the local range of products, decrease transportation costs and increase the share of local income. Furthermore, these developments may render the formation of richer and more diversified production ecosystems possible. Certain dimensions of regional sustainability – for example economic (keeping income at the place) and social (building co-operations between certain groups of the society and improving community life) aspects – could be also improved, if the **employment of socially disadvantaged groups** were preferred in case of developments of the fisheries sector. By these measures the need for poaching could be reduced.

Fish production is very close to the natural farming methods, as the clearness of the water significantly limits the reproduction and growth, and the utilization of nutritients as well. The dosage of nutritients is at low level, the use of organic feed can be carried out. The controlling is also be conducted, as the origin of the products should be certified by invoices, thus, the reliance for the organic products can be increased. **The production of trout has promising chances in the aspect of organic farming**.

In order to reduce the negative impacts on the landscape and to promote organic farming methods we propose the following:

Proposal 24	(1) The **developments including landscape conservation aspects** should be preferred in areas which are rich in natural values. (2) The production and promotion of qualified organic fish products **produced by organic farming methods** should be supported prominently.

3.5. The overall impacts of the measures of the OPF

3.5.1. The cumulative impacts of implementation

As a result of the implementation of the OPF the Hungarian fisheries and aquaculture sector may be a special sector of the domestic food-industry that is acknowledged by both the governmental bodies and the public. Besides the production of healthy and safe food products the sector can also contribute to the conservation of biodiversity, the recreational

activities connected to water, the more efficient water management, the increasing of environmental and landscape values, the improvement of the quality of life in rural areas and the conservation of traditions and cultural values.

Overall, the implementation of the Programme will have decisively positive effects on the environment in most of its measures. This environmental assessment used 18 aspects during the evaluation process, in addition to the 'classic' environmental elements and environmental systems it used such 'schemes' or cathegories which are essential for the conservation of the good condition of the environment and the nature

The **most significant positive impacts of the OPF can be expected in the following fields**, i.e. in these areas the Programme have 'Strenghts':

- promotion of organic farming systems; sustainable regional farming methods and complex environmental management systems;
- prevention against the impacts of extreme climatic situations and environmental disasters (adaptation ability);
- prevention of the quality of water (surface waters and groundwaters), conservation of good ecological conditions;
- reducing chemical and microbiological risks;
- increasing health protection and food safety;
- increasing the environmental awareness of the population, promoting sustainable consumers' behaviour.

Neutral (or slightly positive) impacts can be expected in the following areas:

- quality of soil and geological values,
- settlement quality of environment,
- conservation of different areas under protection,
- increasing the use of renewable energy resources,
- sustainable use of landscape cultural heritage.

In some fields – which results can be considered as negligible – negative impacts may be expected:

- air pollution at global and local level,
- increase of energy and material use.

It should be stated that the level and the importance of these negative impacts will possibly be rather low.

The measures of the Priority axes 3 and 5, as it is derived from their content, can influence the classic environmental elements (air, water, soil, flora and fauna, protected areas) at a lower level.

These measures have more considerable effects on other structures, mechanisms and activities (see cathegories of environmental evaluation E10 - E18). On the contrary, the more

considerable part of **significant impacts will be derived from the measures of the Priority axis 2**, in relation to the environmental elements and the above-mentioned environmental structures as well. It plays also an important role in the establishment of a monitoring system; since during the development of a monitoring system that is working in an optimal and efficient way, the probable impacts should be determined and connected to the different axes and measures. The aspects of monitoring system should be determined in connection with the planned measures.

3.5.2. Possible environmental risks in case of the cancellation of the implementation of the OPF

One of the most important elements of the OPF **is to support of the implementation of the Water Framework Directive**. In case of the cancellation of the Programme the conservation of the good ecological conditions of the fish ponds may be jeopardized under the present Hungarian budgetary conditions, as a result of the lack of financial support.

The introduction and promotion of healthy nutrition and organic farming are key elements of the Programme. In case of cancellation of the OPF the prosperous process would be stopped, because of the lack of financial support, particularly in promoting the consumption of domestic fish products.

The conservation of fisheries traditions and culture is another important element of the Programme. Environmental advantages derived from the small-scale fishing activities would not be prevailed in case of the cancellation of the OPF, which would increase the share of intensive fish farming methods, with higher environmental burden. Traditional fishing and fish production activites are the part of the national heritage, which, in case of the cancellation of the Programme, would be endangered.

4. PROPOSALS TO MANAGE THE NEGATIVE ENVIRONMENTAL IMPACTS OF THE NFSPH AND THE OPF

In this chapter we summarize and systematize the proposals presented in the previous chapters of the Environmental Report, accordingly, we do not make any new proposals in this chapter. (The number in brackets before the proposal is the number of the proposal.)

4.1. Proposals on improvement of sustainability of the NFSPH and the OPF

2 We propose to complete the concept of horizontal sustainability of the NFSPH: *„At the enforcement of the horizontal policies the principles of local sustainability and landscape approach should be a basic criterion.*"

3 The conformity between the OPF and Regional Operational Programmes, which also play an important role in regional development, should be ensured.

13(1) The reasons of the negative impacts on the wetland ecosystems (i.e. foreign contaminations, climate change, poaching, over-catching) should be determined in the SWOT analyses and problem analysis trees of 'Fisheries activities in natural waters' and 'Hungarian aquaculture' and proposals should be taken for solving these problems within the framework of the OPF or apart from it.

13(2) The possible problems caused by dangerous waste of fish processing plants should be summarized and their results should be determined among the Weaknesses of the SWOT analysis of fish procession (i.e. the types of dangerous waste, the share compared to other waste originated during the process and the quantity of packaging waste).

13(3) The environmental components of the SWOT analysis and the components of problem analysis tree should be harmonized both in the Plan and the Programme.

4.2. Proposals on reducing the possible impacts 'compensating' measures – proposals on the OPF

<u>Proposals on the measures of Axis 2</u>

6(1) The presentation of traditional fishery activities and the fishery heritage should be supported.

6(3) The socially disadventaged groups should be supported by employment possibilities during the development process of fisheries plants.

6(6) The developments for the use or re-use waste and by-products of the plants or plant units of fishery or fish producing plants should be preferred, as the environmental burden and the use of natural resources can be reduced by them..

6(7) The use of geothermal energy sources in warm water aquaculture production should be preferred, as well as the fish production connected to reconstruction of water power stations.

8 The treatment of the waste water, the biologially degradable organic matters and dangerous waste should be at the beat available technical level in case of developments and investments accomplished in fish processing plants.

9(1) The treatment and the recovery of biologically degradable organic waste produced by fish processing plants should be ensured, new technologies should be installed for the minimising of the quantity of packaging and dangerous waste.

9(3) The collecting and removal of perished fish carcasses should be assured by methods without harmful effects and according to public sanitary regulations.

11(2) The limits of concentration of any pollutants should be determined for fish ponds having legal permission for operation – both for the supply waters and drainage – which can be regional and special limits depending on the user; the value of these limits should be determined by the relavant authorities

12 The general requirements should be kept in establishment of new packaging technologies to comply with the efforts on waste minimising and recycling, as it is laid down in Annex I. of the Government Decree No. 94/2002. (5th May) on 'Specific rules on packaging and the treatment of packaging waste'.

19 The use of equipment and technologies with reduced material and energy use should be preferred at the purchasing of fisheries equipment and in the development process of physical infrastructure. Using energy saving technological methods in fish processing, the increase of energy efficiency and the installation of solar- and geothermal energy systems and windpower systems should be supported.

23(1) *)* The construction of natural-alike fish ponds or reservoirs and developments fitting into the ecological system should be preferred.

23(2) Supports should not be given for the establishment of fencing around natural waters, as the fencing for property protection should be realized in the scope of aquaculture measures, infrastructure development.

23(3) It is suggested, that prior to starting new projects for constructing fish ponds, a strategic environmental assessment should be carried out in addition to the evaluation of environmental performance, for its significant effects on water management and landscape changes, in cases where the total area of the established water surface exceeds 300 hectares in the given region in a 7 year period.

24(1) The developments including landscape conservation aspects should be preferred in areas which are rich in natural values.

Proposals on the measures of Axis 3

4 The training activities and purchasing equipment for the prevention of poaching should be supported prominently, as well as the installation of monitoring systems for water pollution and fish destruction.

6(4) The knowledge transfer of professional training measures should be developed in the related professions (such as tourism, food processing, trade, agriculture and forestry).

6(5) The promotional campaigns and trading actions of fish producers should be supported.

7 The promotion of domestic fish production should be focused on domestic (freshwater) fish species.

9(2) The compliance with the requirements on food-processing, food-hygiene, quality assurance (ISO) and HACCP should be assured.

11(1) The improvement of the knowledge of the fishery experts on the WFD should be supported.

17 We propose the realization of the principle 'Produce in place, consume in place' which may promote the fish consumption based on locally produced fish and fish products.

24(2) The production and promotion of qualified organic fish products produced by organic farming methods should be supported prominently.

Proposals on the measures of Axis 5

5(3) Guidelines should be prepared for the harmonization process of the OPF with other Operational Programmes and the NHRDP.

18 A study should be completed on the possible environmental-friendly techical and technological development of the enterprises of the fisheries sector.

22 Previous to the release of manures of animal origin into fish ponds – in accordance with the objectives to prevent chemical and biological risks – the elaboration of a study on the evaluation and the management of possible risks is suggested.

Overall proposals to be taken into account for several measures and proposals improving implementation process

1 Inland fishing in natural waters, fish production in fish ponds and the synergic structure of sectorial developments connected to these activities should be developed especially in the areas with national importance for integrated development (areas of the Lake Balaton, the Danube and the River Tisza).

5(1) The experts delegated by the Managing Authorities and Consultative Bodies of the following organizations should be participate – at least with consultative rights – in the monitoring and decision making committees of the OPF: Environment and Energy OP (measures on water management, renewable energy sources and environmental awareness); NHRDP (measures on protection of aquatic and wetland habitats, water management, village tourism, training, rural development advisory measures and LEADER-actions) and ROPs (measures on tourism and water management).

5(2) The implementation bodies of the OPF should be represented in the monitoring committees of the Regional Operational Programmes, the Environment and Energy OP and the NHRDP.

6(2) The supplementary income facilities of fisheries production should be made possible for the actors of agricultural production and forestry.

10 In case of heavily modified and artificial water bodies and fish ponds the provisions regarding environmental objectives laid down in the Water Framework Directive should be applied (Article 4).

14 We propose that the following priorities should be emphasized during the implementation process of the OPF:
- 1.3.3. Slowing down the degradation of natural aquatic and wetland habitats, restocking indigenous species and reducing the overpopulation of invasive fish species.
- 1.6.1. Ensuring the sustainable utilization and protection of fisheries resources.
- 1.6.3. Developing technical skills and encouraging partnership based on common programmes between researchers and the fisheries sector.
- 1.7.2. Increasing the social acceptance of the fisheries sector.
- 1.8.3. Increasing the consumption of organic fish products coming from domestic production.
- 1.9.2. Laying down the scientific foundations of the diversification and multifunctionality of fish production.
- 1.11. Ensuring the protection of domestic fish gene pools.

15 We propose the introduction and use of target-specific sustainability indicators for the following objectives during the implementation process of the OPF:
- 1.2.4. Expanding the possibilities of direct sales in fish producing farms.
- 1.4. Increasing the level of Hungarian fish consumption and facilitate healthy human nourishment this way by producing and marketing healthy fish products with high biological value; increasing the product scale and added value of the processed fish products.
- 1.5.1. Increasing the productivity and effectiveness in the fish processing industry primarily through improving the technical and technological standard.
- 1.8.1. Introducing new and new type freshwater fish species into the domestic market.

16 We propose to perform an environmental impact assessment – in accordance with the Government Decree No. 314/2005 – before the construction of new fish ponds in order to fully comply with environmental aspects.

20 The local harmonization of flood protection, fishing activities and rural development activities should be assured by using complex rural environmental farming methods.

21 In fish ponds which are situated in protected, sensitive or Natura 2000 areas the fish production should be managed by extensive methods, these activities should be supported prominently. In accordance with the principles laid down in NFSPH we propose to establish new aspects for the conservation of habitats of those species, which are living in the neighbourings of fish ponds with extensive production and – by their feeding and nesting habits – may cause conflicts.

25 Supplementary Guidelines for Sustainability should be elaborated based on the Environmental Report of the SEA relating to the OPF.

26 We propose the elaboration of an integrating fishery planning and decision-making method which can consider the different sectorial, regional and social aspects (demands and anxiety), and to explore the favourable and unfavourable inter-relations as well.

5. ADDITIONAL PROPOSED MEASURES

5.1. Measures for other strategic documents

As a result of the measure on 'Inland fishing in natural waters' of the Programme, the implementation of the OPF should be harmonised with the measures on water management, renewable energy sources, tourism and nature conservation of thre NHRDP, Environment and Energy OP and Regional OP. Within its frames, the **implementation bodies and experts of the OPF should be represented in the relevant decision-making committees, monitoring committees and sub-committees** (at least for consultation).

In the procedural orders of the implementation of the **NHRDP (development of village tourism) and the ROPs (development of angling-, eco- and water-tourism)** those measures should be preferred that connected to the developments and projects funded from the OPF.

In the procedural orders of the implementation of the **OPEE developments of renewable energy use** those measures should be preferred that connected to the developments and projects funded from the OPF.

In the procedural orders of the implementation of the **OPEE, NHRDP and the ROPs developments of nature conservation** those measures should be preferred that connected to the developments and projects funded from the OPF.

The **Rural Development Network of the NHRDP** should form an official co-operation with the consultation activities of the OPF, in order to share information on development and special information (connected to SEA aspects) on sustainable development and environmental integration, in a consequent and unrestricted way.

The activities developed and funded by the OPF should be incorporated into the methodology subjects of the planning and implementation process of the **LEADER Communities of the NHRDP**. It is also proposed to prefer those local management organizations which represent the performers of the fisheries sector in the selection and supporting possibilities of the LEADER Communities (mainly in the areas of Lake Balaton, Danube and the River Tisza) and which represent significant developments in eco-, water- and angling-tourism, and developments of wetland habitats.

The OPEE measures promoting the sustainable consumption with an **attitude approach** and the measures of ROP on the improvement of environmental awareness should also strenghten the OPF objectives for increasing the freshwater fish consumption.

We consider important that the results of the SEA Environmental Report should be taken into consideration in those measures which manage organizing and evaluating roles during the implementation process of the OPF (e.g. action plans, calls and guidelines for application, mid-term reviews etc.). Proposals of the SEA should be consequently

represented in calls for application, in judgement guidelines and in procedural orders. In compliance with these aspects we suggest the following:

Proposal 25	Supplementary Guidelines for Sustainability should be elaborated based on the Environmental Report of the SEA relating to the OPF.

Proposal 26	We propose the elaboration of an integrating fishery planning and decision-making method which can consider the different sectorial, regional and social aspects (demands and anxiety), and to explore the favourable and unfavourable inter-relations as well.

5.2. Proposals to the environmental indicators of the NFSPH and the OPF

5.2.1. Necessity of environmental indicators and the methods of their development

The relevant Community regulation makes possible for the Member States to use additional indicators besides the common indicators to be used compulsorily. **We propose that the indicators should be completed by environmental indicators in certain measures.** The environmental indicators have three main purposes:

- to provide information on the environmental problems for the decision-makers so they can estimate the significance of the given problem;
- to support the development of the adeqate policy by exploring the primary reasons of environmental burden;
- to examine the impacts of the responses given by the fisheries policy.

The evaluation matrix of environmental performance can provide help in the development of indicators, if neccessary. Basically, two questions can be raised on it:

- At which measures is advisable to use the environmental/natural indicators?
- Where should these indicators be directed, or what should they 'indicate'?

Both questions could answer by the evaluation matrix of environmental performance. **In one hand, the use of such 'green' indicators may be effective in case of measures, which received significantly negative or significantly positive judgements in overall. Thus, it would be reasonable to use environmental indicators at the following measures:**

- 2.1. Aquaculture: construction and value added reconstruction of fish ponds, wintering and storage ponds and tanks and hatcheries; construction and reconstruction of dikes, ponds, fish-cradles, inlet and outlet channels and other water control structures;
- 2.1. Aquaculture: investments on equipment and other technical devices for fish production and transportation;
- 2.1. Aquaculture: development of the infrastructure in fish production plants;

- 2.2. Inland fishing (fishing activities in natural waters): obtaining and renewing fishing gears and equipment (for example fishing boats and vessels, freezing apparatus etc.);
- 2.3 Investments in fish processing and marketing: building, reconstruction and modernization fish processing plants ;
- 3.3. Collective actions: Research and Development activities aiming at the improvement of the quality and food safety of aquaculture products, developing and testing new tracing systems;
- 3.4. Development of new markets and promotion campaigns;
- 3.5. Pilot projects.

We shall note, that in the Programme there is nothing about the data collection – data processing – analysis chain in the course of the implementation process of the measures, therefore one cannot know that who shall execute the measuring and monitoring actions of the several indicators and how the general public shall be informed on the development of these values (in fact, the successful introduction of the measures).

5.2.2. Proposed environmental indicators

We propose the following environmental indicators in relation to the implementation process of the OPF:

- Total area of new wetland habitats by changes in land use, in case of new fishponds and fishpond reconstruction [hectares]
- The number of purchased new machinery [pcs]
- The number of old machinery replaced by new machinery [the number of old machinery sorted out due to the purchase of new machinery]
- Waste water and waste production of fish procession plants
- The proportion of indigenous fish species compared to the total fish production
- The number of enterprises producing qualified organic products

We shall note, that our proposals on indicators cannot be considered as complete, so that, additional, axis-specific proposals should be taken within the frames of the Guideline for Sustainability to be elaborated.

6. EXECUTIVE SUMMARY

Background information, subject and objectives of the Strategic Environmental Assessment

The Ministry of Agriculture and Rural Development (MARD) – as the responsible planning authority of the Hungarian National Fisheries Strategic Plan of Hungary (NFSPH) and the Operational Programme for Fisheries (OPF) – officially initiated the preparation of the Environmental Report and the Strategic Environmental Assessment (SEA) in accordance with the 2/2005. (I.11.) Government Decree towards the National Inspectorate for Environment, Nature and Water (NIENW) on 23rd February 2007.

In our approach the subject of the SEA is the European Fisheries Fund (EFF) -sourced fisheries policy; the SEA was elaborated on the NFSPH and the OPF in an integrated way, with the same approach, unified methodology and through a common consultation and public participation. The ultimate objective of the SEA was to prepare an Environmental Report that provides feasible proposals in order to improve the environmental performance of the fisheries measures and to enforce sustainable development in the fisheries and aquaculture sector.

The management of the elaboration and consultation process of the SEA

The MARD – in co-operation with the Ministry of Environment and Water – has established an independent group of experts experienced in the SEA process and fisheries for the elaboration and consultation process of the SEA **(SEA Working Group)**. The activities of the Working Group were co-ordinated by the Env-in-Cent Consulting Ltd. (EiC). The public consultation process was conducted by the **National Society of Conservationists (NSC)**.

The effects of proposals made in the course of the elaboration process of NFSPH/OPF

The role of the MARD has been appreciated in providing the information and data required for the elaboration of the Environmental Report in this short-term SEA process. The proposals and comments made on the sustainability of the Plan and on the improvement of the environmental performance of the Programme were continuously consulted by the MARD and were fitted in the relevant documents. A positive and constructive approach of the expert staff and the administrative leaders of the MARD supported the work of the SEA Working Group. This positive administrative attitude that far exceeded the legal obligations has significantly contributed to the completion of the Environmental Report.

The involvement of the stakeholders into the elaboration process of the Environmental Report

Since the National Fisheries Strategic Plan of Hungary and the Operational Programme for Fisheries are considered as plans with national impacts and importance, the definition of 'public' or 'stakeholders' covers the professional, representative and social organizations of

environmental protection and nature conservation; other organizations and institutions of environmental and fisheries affairs; and, the general public as well. These groups are the subjects of public consultation. A **Consultation Plan was made on the process of public consultation** and judged by the representatives of the public concerned.

The main tool for access to information was the SEA homepage, where all the information generated during the Assessment and discussed by the working group are available for the public, including the draft versions of the Strategic Plan, the Programme and the Assessment, the comments of the public consultations were publicated. The public documents are available at the homepage of NSC (www.mtvsz.hu/skv), which can be accessed directly from the homepage of MARD (www.fvm.hu), and the homepage of EiC (www.env-in-cent.hu). The homepage is managed by the NSC. (The key documents were sent on paper or CD by mail for those having no access to the internet, if requested.) The **general possibility for disclaiming of opinion** was enabled through the homepage; anyone was allowed to send comments at any stages of the assessment through the homepage. The comments were received by the experts participating in the assessment and were taken into consideration.

The most important **professional, representative and non-governmental organizations of environmental protection** were informed by a direct e-mail at the beginning of the environmental assessment, in addition, the news were spread through the e-mail lists of these organizations. The public debate of the SEA Environmental Report was arranged at the **Partnership Conference**, where about 25 organizations and institutions were participated. The consultation period of the document was 30 days. The opinions and comments on the documents could be either made in oral form at the Conference, or in written form through the homepage or sent by mail. The oral comments were recorded in the Protocol.

The performance of the assessment process was negotiated with the **relevant administrative bodies and authorities**. The National Inspectorate of Environment, Nature and Water (NIENW) was assigned by the MEW as competent environmental authority for the administrative issues of the assessment process. The authorities that received the draft of Environmental Report were chosen in co-operation by NIENW, their comments were integrated into the final version of the Environmental Report. The documents of the Environmental Report were submitted to the National Environmental Council for written comments; their comments were also taken into consideration during the elaboration process of the final version of the Environmental Report.

Presentation of the applied methodology and the draft summary of the results

The methodology of evaluation is built on the approach – which is based on the formerly elaborated SEA approach applied in the Hungarian practice – that **the strategic level of the fisheries policy (i.e. objectives and priorities) is compared to special value of order for sustainability, while the more detailed tools and measures of the Programme are**

examined in the context of an environmental performance evaluation scheme. In details:

- The **value of order for sustainability** was determined and debated with experts (with 34 criteria) and adapted to the domestic conditions regarding fish farming and the fisheries sector. The value of order for sustainability, of course shall not be considered as the absolute declaration of sustainability, and one could not make any judgements on the sustainability of the NFSPH and the OPF by this. We consider the value of order for sustainability as a tool or a relative reference for the different priorities and objectives to compare with. The compliance of the priorities and objectives of the Plan and the Programme with the value of order for sustainability were analysed in separate evaluation matrixes.
- The more concrete tools and measures of the Programme were examined **in the context of an environmental performance evaluation scheme** in order to get information on that how the measures comply with the environmental and environmental policy aspects that are based on the National Environmental Programme or other environmental strategic documents. (This set of objectives takes the environmental priorities of prevention, re-cycling (re-use) and disposal into account.) The measures of the Programme were compared to the environmental aspects – by a collective expert's judgement – and the results of the environmental performance were detailed in an environmental evaluation matrix.

We shall note that this evaluation method does not want to put the priorities and objectives into the dimension of 'sustainable – non-sustainable', it shall be used as an **analytical tool for decision making** that would like to provide clear guidelines for the priorities and objectives we propose to modify. We presented and analysed the sustainability evaluation and the environmental performance in details in the Environmental Report, and the following consequences were explored:

- The **Plan can contribute to the national transition towards sustainable development**, if the aspects proposed by the SEA will be integrated in the course of the implementation process;
- The **environmental performance of the Programme is acceptable, but it could be significantly improved** if the improving and compensating meaures proposed by the SEA will be integrated. As a result of the implementation of the OPF the Hungarian fisheries and aquaculture sector may be a special sector of the domestic food-industry which besides the production of healthy and safe food products can also contribute to the conservation of biodiversity, the recreational activities related to water, the more efficient water management, the increasing of environmental and landscape values, the improvement of the quality of life in rural areas and the conservation of traditions and cultural values. The **most significant positive impacts of the OPF** can be in the following fields, i.e. in these areas the Programme have 'Strenghts':
  - promotion of organic farming systems; sustainable regional farming methods and complex environmental management systems;

- prevention against the impacts of extreme climatic situations and environmental disasters (adaptation ability);
- prevention of the quality of water (surface waters and groundwaters), conservation of good ecological conditions;
- reducing chemical and microbiological risks;
- increasing health protection and food safety;
- increasing the environmental awareness of the population, promoting sustainable consumers' behaviour.

In case of some measures – which environmental effects can be considered as negligible – negative impacts may be expected (for example air pollution at global and local level, increase of energy and material use). To strenghten the positive effects and to reduce the negative impacts 26 proposals were elaborated in the Environmental Report. We shall note, that the implementation process of the Programme should be organized and managed by taking the environmental aspects into consideration, in order to prevent the increase of the environmental burden during the allocation of the financial sources.

Relation to other strategic documents

We examined thre relations to the **National Development Policy Concept** (NDPC) and the **National Regional Development Concept** (NRDC). The NRDC insists on the improvement of capital interest and employment in the priorities of **agricultural policy and agriculture and rural development** in the areas of Lake Balaton, the Danube and the River Tisza. The Programme contributes to this objective by the diversification of fish production and establishment of multifunctionality in the fisheries sector. According to the NRDC the sectorial planning process should be carried out with a regional dimension. The regional priorities of the NRDC connected to the agricultural policy contain sustainability and regional development approaches to the fisheries sector's planning process. The different objectives of the OPF regarding natural waters and aquaculture systems are in compliance with this approach. To improve the compliance to strategic documents four proposals were made by the Environmental Report (see below).

The relations to the **New Hungary Development Plan** (NHDP) and the **New Hungary Rural Development Programme** (NHRDP) were also evaluated. The most important factor for ensuring the conformity is to establish the co-ordination and co-decision process during the implementation of the OPs of the NHDP, the NHRDP and the OPF. In order to harmonize these factors we made three proposals.

In addition, we reviewed the relations with the **National Environmental Programme (NEP-II) and the National Waste Management Plan (NWMP)**. In order to establish the conformity with the NEP-II we proposed concrete text versions to be inserted into the Programme. Regarding the NWMP, our proposals drew attention to the treatment and re-utilization of the waste water, the biologially degradable organic matters and dangerous

waste originated in the fish processing plants, and the minimising of the packaging waste and the quantity of dangerous waste originated on the plants.

Relations to certain legal rules with significant importance

We described the correlations between the implementation of **NATURA 2000 directives** and the fisheries activities in details. The interdependence of nature conservation and the fishery sector is at a very high level in Hungary: nearly 70 percent of the area of fish-breeding ponds relevant to the Operational Programme for Fisheries is situated in Natura 2000 areas, that means additional requirements and measures for the producers connected primarily to the protection of wild birds. General priorities of the NFSPH are connected to the Natura 2000 objectives. The priorities and objectives of the OPF are also in compliance with the Community objectives of Natura 2000 areas.

We also demonstrated the aspects connected to the implementation process of the **Water Framework Directive** (WFD) in details. The main objective of the WFD is the elaboration and implementation of an integrated and sustainable policy for water management. Fishery and aquaculture are connected to the Water Framework Directive at two areas; the first is the quality of river basins, the second is the water management of agricultural production. **The priorities of the Plan are entirely in compliance with the objectives of the Water Framework Directive; the planned measures of the Programme render probable that the activities of the fisheries sector will significantly contribute to the Hungarian implementation of the WFD.** In order to fulfill these objectives we made two concrete proposals.

Possible environmental impacts related to the implementation process of the Programme

The impacts of the measures of the OPF have no significant impacts on the **quality of air and greenhouse gas emissions**, thus it can be considered as neutral.

The significant share of domestic fish production is conducted in fish ponds. In environmental aspects these ponds are more endangered than the natural waters used for fishing activities. In the course of the **conditions of surface waters and groundwater** the OPF renders that using modern technologies, the emission of water pollutants is not significant, thus it may not have significant effects on water quality. The criteria of good quantitative status of groundwater are determined by the Water Framework Directive, which should be taken into consideration during the implementation process of the OPF. The implementation of the OPF may assure the harmonic environmental conditions, but the knowledge on hydrogeological information and conditions of the fish ponds should be ensured. In accordance with the requirements of the WFD the local harmonization of flood protection, fishing activities and rural development activities assured by using complex rural environmental farming methods was proposed.

The increasing temperature and the earlier appearance of days with higher average temperature may cause the more intensive use of water stocks. The oxygen supply has greater importance for fish breeded in fish-ponds. The increasing temperature – as a

consequence of **climate change** – may lead to the loss of oxygen supply; therefore the role of management of aeration may increase in the future. In the case closed intensive fish production systems and production technologies using geothermal water, the climate change may have favourable effects, since in this case the need of geothermal water is decreasing, thus, the environmental burden may be also reduced.

The role of fish ponds has a great importance in the conservation of **aquatic and wetland habitats**. The fish production shall be managed by such methods, which can assure perfect living conditions for all protected populations of the protected wetland habitats. The fact, that fish ponds and pond systems shall assure living, feeding and reproducing possibilities for wild birds and other protected animal species should also be taken into consideration. The priorities and objectives of the Plan and the Programme, in overall, have favourable effects on the conservation of areas under natural protection, environmentally sensitive areas and Natura 2000 areas. However, the **nature conservation functions and measures of the fishing activities should also be applied** not only in Natura 2000 areas but also **in environmentally sensitive areas (ESA), areas of ecologic corridors and in all areas under natural protection.** In order to comply with these conditions we proposed to establish **new aspects for the conservation of habitats** of those species which are living in the neighbourings of fish ponds with extensive production and – by their feeding and nesting habits – may cause conflicts.

Wetland habitats are not only one of the most important habitats in **biodiversity conservation aspects**, but also those with the highest risks. The measures of the Plan and the Programme connected to fish production in fish ponds using extensive methods may have positive effects on the conservation of wetland habitats and protection of biodiversity. We proposed that the stocking of new fish species, which are non-native in Hungary, should be restricted by legal rules, in order to decrease the probable harmful impacts on the domestic natural waters. It is also important to establish the conditions for the prevention and conservation of fish fauna and biodiversity in domestic natural waters.

The priorities, objectives and measures of the NFSPH and the OPF can contribute to the human **health and quality of life** in several aspects. One of the most important effects is to be reached is the increasing of domestic consumption of fish and fish products. As an important indirect effect of the measures, the sustainable management and operation of fish ponds can contribute to the maintenance of the healthier living circumstances and the environment as well. Fish ponds can be used also for the environment-friendly utilization of organic manure originated in the animal husbandry, so as to avoid the negative impacts on the environment and human health derived from the release of manures. Before the release manures of animal origin into fish ponds – in accordance with the objectives of the prevention of chemical and biological risks – the elaboration of a **study on the evaluation and the management of possible risks** is proposed.

In case of **land use,** the establishment of a mosaic pattern is a key objective in Hungary. It is supported by establishing fish ponds, but, on the contrary, an unsuitably planned water surface may cause significant changes in the enviroment and on the landscape. Therefore, it

is desirable that the changes in land-use should fit to the local or regional settlement plans not to their modifications.

The connections made between natural land use patches have actively beneficial impacts on **spatial structure**. In the course of establishment of water surfaces the fitting into ecological corridors, the eliminating of ecologic barriers of wetland species and the development of corridors should be taken into account. The waterfront habitats as the locality of the fishing activities in natural waters are in common property.

Although, the role of fishing activities on landscape management is not significant in Hungary, the symmetrical boundaries of artificial water surfaces and the symmetrical morphologic features of their establishments may damage the **appearance of landscape**, in general. This situation should be improved by the formation of ponds and reservoirs with natural-alike coastline, with non-linear boundaries, indented by creeks and islands, or, by establishing living habitats. These places may also have touristic attraction. In overall, the OPF may have favourable effects on land use and spatial structure, but for reducing the possible negative impacts three proposals were drawn up.

The evaporation processes of greater water surfaces may have mezoclimatic effects, which improve the **regeneration of natural resources**, as it can develop advantageous ecological conditions for the flora of the neighbouring areas. Some part of the water body of fish ponds moves toward by lateral seepage which means expressive sources of water for the vegetation.

The **support of traditional fishing activities and its cultural heritage** is an efficient supplementary tool for initiations of water tourism and angling tourism; it also give additional income opportunities for those working in the fisheries sector. The possible support for these activities should be indicated in the OPF not only among the objectives, but also in the form of concrete measures. These fisheries developments are also indicated in the Lake Balaton Regional Complex Programme that is connected to the NHDP.

The **role of the fisheries and aquaculture sector in the rural economy** can be improved by the implementation of the measures of the OPF, thus, the support of development and training in case of small-scale fish ponds should be proposed. Certain dimensions of regional sustainability – such economic (keeping income at the place) and social (building co-operations between certain groups of the society and improving community life) – could also be improved, if the **employment of socially disadvantaged groups** was preferred in case developments of the fisheries sector. By these measures, the need or intention for poaching could be reduced. The production of trout has promising options **in the aspect of organic farming**.

Possible environmental risks in case of the cancellation of the implementation of OPF

One of the most important elements of the OPF **is to support of the implementation of the Water Framework Directive**. In case of the cancellation of the Programme the conservation of the good ecological conditions of the fish ponds may be jeopardized under the present Hungarian budgetary conditions, as a result of the lack of financial support.

The introduction and promotion of **healthy nutrition and organic farming** are key elements of the Programme. In case of cancellation of the OPF the prosperous process would be stopped, as a result of the lack of financial support, particularly in promoting the consumption of domestic fish products.

The conservation of fisheries traditions and culture is another important element of the Programme. Environmental advantages derived from the small-scale fishing activities would not be prevailed in case of the cancellation of the OPF, which would increase the share of intensive fish farming methods, with higher environmental burden. Traditional fishing and fish production activites are the part of the national heritage, which, in case of the cancellation of the Programme, would be endangered.

SEA proposals on the NFSPH

2 We propose to complete the concept of horizontal sustainability of the NFSPH: „At the enforcement of the horizontal policies the principles of local sustainability and landscape approach should be a basic criterion."

3 The conformity between the OPF and Regional Operational Programmes, which also play an important role in regional development, should be ensured.

13(1) The reasons of the negative impacts on the wetland ecosystems (i.e. foreign contaminations, climate change, poaching, over-catching) should be determined in the SWOT analyses and problem analysis trees of 'Fisheries activities in natural waters' and 'Hungarian aquaculture' and proposals should be taken for solving these problems within the framework of the OPF or apart from it.

13(2) The possible problems caused by dangerous waste of fish processing plants should be summarized and their results should be determined among the Weaknesses of the SWOT analysis of fish procession (i.e. the types of dangerous waste, the share compared to other waste originated during the process and the quantity of packaging waste).

13(3) The environmental components of the SWOT analysis and the components of problem analysis tree should be harmonized both in the Plan and the Programme

SEA proposals on the measures of the OPF connected to Axis 2

6(1) The presentation of traditional fishery activities and the fishery heritage should be supported.

6(3) The socially disadventaged groups should be supported by employment possibilities during the development process of fisheries plants.

6(6) The developments for the use or re-use waste and by-products of the plants or plant units of fishery or fish producing plants should be preferred, as the environmental burden and the use of natural resources can be reduced by them..

6(7) The use of geothermal energy sources in warm water aquaculture production should be preferred, as well as the fish production connected to reconstruction of water power stations.

8 The treatment of the waste water, the biologially degradable organic matters and dangerous waste should be at the highest technical level in case of developments and investments accomplished in fish processing plants.

9(1) The treatment and the recovery of biologically degradable organic waste produced by fish processing plants should be ensured, new technologies should be installed for the minimising of the quantity of packaging and dangerous waste.

9(3) The collecting and removal of perished fish carcasses should be assured by methods without harmful effects and according to public sanitary regulations.

11(2) The limits of concentration of any pollutants should be determined for fish ponds having legal permission for operation – both for the supply waters and drainage – which can be regional and special limits depending on the user; the value of these limits should be determined by the relavant authorities

12 The general requirements should be kept in establishment of new packaging technologies to comply with the efforts on waste minimising and recycling, as it is laid down in Annex I. of the Government Decree No. 94/2002. (5th May) on 'Specific rules on packaging and the treatment of packaging waste'.

19 The use of equipment and technologies with reduced material and energy use should be preferred at the purchasing of fisheries equipment and in the development process of physical infrastructure. Using energy saving technological methods in fish processing, the increase of energy efficiency and the installation of solar- and geothermal energy systems and windpower systems should be supported.

23(1) *)* The construction of natural-alike fish ponds or reservoirs and developments fitting into the ecological system should be preferred.

23(2) Supports should not be given for the establishment of fencing around natural waters, as the fencing for property protection should be realized in the scope of aquaculture measures, infrastructure development.

23(3) It is suggested, that prior to starting new projects for constructing fish ponds, a strategic environmental assessment should be carried out in addition to the evaluation of environmental performance, for its significant effects on water management and landscape changes, in cases where the total area of the established water surface exceeds 300 hectares in the given region in a 7 year period.

24(1) The developments including landscape conservation aspects should be preferred in areas which are rich in natural values.

SEA proposals on the measures of the OPF connected to Axis 3

4 The training activities and purchasing equipment for the prevention of poaching should be supported prominently, as well as the installation of monitoring systems for water pollution and fish destruction.

6(4) The knowledge transfer of professional training measures should be developed in the related professions (such as tourism, catering trade, trade, agriculture and forestry).

6(5) The promotional campaigns and trading actions of fish producers should be supported.

7 The promotion of domestic fish production should be focused on domestic (freshwater) fish species.

9(2) The compliance with the requirements on food-processing, food-hygiene, quality assurance (ISO) and HACCP should be assured.

11(1) The improvement of the knowledge of the fishery experts on the WFD should be supported.

17 We propose the realization of the principle 'Produce in place, consume in place' which may promote the fish consumption based on locally produced fish and fish products.

24(2) The production and promotion of qualified organic fish products produced by organic farming methods should be supported prominently.

SEA proposals on the measures of the OPF connected to Axis 5

5(3) Guidelines should be prepared for the harmonization process of the OPF with other Operational Programmes and the NHRDP.

18 A study should be completed on the possible environmental-friendly techical and technological development of the enterprises of the fisheries sector.

22 Previous to the release of manures of animal origin into fish ponds – in accordance with the objectives to prevent chemical and biological risks – the elaboration of a study on the evaluation and the management of possible risks is suggested.

Overall proposals to be taken into account for several measures and proposals improving implementation process

1 Inland fishing in natural waters, fish production in fish ponds and the synergic structure of sectorial developments connected to these activities should be developed significantly in the areas with national importance for integrated development (areas of the Lake Balaton, the Danube and the River Tisza).

5(1) The experts delegated by the Managing Authorities and Consultative Bodies of the following organizations should be participate – at least with consultative rights – in the monitoring and decision making committees of the OPF: Environment and Energy OP (measures on water management, renewable energy sources and environmental awareness); NHRDP (measures on protection of aquatic and wetland habitats, water management, village tourism, training, rural development advisory measures and LEADER-actions) and ROPs (measures on tourism and water management).

5(2) The implementation bodies of the OPF should be represented in the monitoring committees of the Regional Operational Programmes, the Environment and Energy OP and the NHRDP.

6(2) The supplementary income facilities of fisheries production should be made possible for the actors of agricultural production and forestry.

10 In case of heavily modified and artificial bodies of water and fish ponds the provisions regarding environmental objectives laid down in the Water Framework Directive should be applied (Article 4).

14 We propose that the following priorities should be emphasized during the implementation process of the OPF:
- 1.3.3. Slowing down the degradation of natural aquatic and wetland habitats, restocking indigenous species and reducing the overpopulation of invasive fish species.
- 1.6.1. Ensuring the sustainable utilization and protection of fisheries resources.
- 1.6.3. Developing technical skills and encouraging partnership based on common programmes between researchers and the fisheries sector.
- 1.7.2. Increasing the social acceptance of the fisheries sector.
- 1.8.3. Increasing the consumption of organic fish products coming from domestic production.
- 1.9.2. Laying down the scientific foundations of the diversification and multifunctionality of fish production.
- 1.11. Ensuring the protection of domestic fish gene pools.

15 We propose the introduction and use of target-specific sustainability indicators for the following objectives during the implementation process of the OPF:
- 1.2.4. Expanding the possibilities of direct sales in fish producing farms.
- 1.4. Increasing the level of Hungarian fish consumption and facilitate healthy human nourishment this way by producing and marketing healthy fish products with high biological value; increasing the product scale and added value of the processed fish products.
- 1.5.1. Increasing the productivity and effectiveness in the fish processing industry primarily through improving the technical and technological standard.
- 1.8.1. Introducing new and new type freshwater fish species into the domestic market.

16 We propose to perform an environmental impact assessment – in accordance with the Government Decree No. 314/2005 – before the construction of new fish ponds in order to fully comply with environmental aspects.

20 The local harmonization of flood protection, fishing activities and rural development activities should be assured by using complex rural environmental farming methods.

21 In fish ponds which are situated in protected, sensitive or Natura 2000 areas the fish production should be managed by extensive methods, these activities should be supported prominently. In accordance with the principles laid down in NFSPH we propose to establish new aspects for the conservation of habitats of those species which are living in the neighbourings of fish ponds with extensive production and – by their feeding and nesting habits – may cause conflicts.

25 Supplementary Guidelines for Sustainability should be elaborated based on the Environmental Report of the SEA relating to the OPF.

26 We propose the elaboration of an integrating fishery planning and decision-making method which can consider the different sectorial, regional and social aspects (demands and anxiety), and to explore the favourable and unfavourable inter-relations as well.

We consider important to emphasize that the different aspects presented in the proposals should be consequently represented in calls for application, in judgement guidelines and in procedural orders, so on the basis of the SEA Environmental Report, supplementary **Guidelines for Sustainability** should be elaborated with relations to the OPF.

The proposed environmental indicators in relation to the Programme are:

- Total area of new wetland habitats by changes in land use, in case of new fishponds and fishpond reconstruction [hectares]
- The number of purchased new machinery [pcs]
- The number of old machinery replaced by new machinery [the number of old machinery sorted out due to the purchase of new machinery]
- Waste water and waste production of fish procession plants
- The proportion of indigenous fish species compared to the total fish production
- The number of enterprises producing qualified organic products

We shall note that our proposals on indicators cannot be considered as complete, so that, additional, axis-specific proposals should be taken within the frames of the Guideline for Sustainability to be elaborated.

Annexes

Annex 1: Sustainability evaluation matrix of the priorities of the NFSPH (continued on next page)

PRIORITIES	*Holistic, overall and general values*							*Environmental and natural aspects and criteria*									*Economic aspects and criteria*						
	H1	H2	H3	H4	H5	H6	H7	K1	K2	K3	K4	K5	K6	K7	K8	K9	G1	G2	G3	G4	G5	G6	G7
	Local and regional sustainability	Global sustainability	Eco-social rural development,	Value protecting, diversification of fish	Carefulness and altruism	Ethical behaviour	Conscious food production and	Nature conservating fish farming	Organic fish farming	Prevention and minimising of	Minimising further negative impacts	Dematerialization	Re-cycling and re-use	Economical use of exhausting	Value protecting fish farming methods by	Sectorial integration	Prospering rural economy	Integrated product policy	Produce in place, consume in place'	Work in place'	Quality products, innovations	Diversified rural product supply	Regional co-operations for
1.1 Encouraging the healthy feeding of the Hungarian population by producing high quality and healthy fish; ensuring the production base and appropriate conditions of safe fish meat production.	1	1	2	2	NR	NR	2	1	2	0	1	-1	NR	NR	1	1	2	0	2	2	2	2	NR
1.2. Ensuring the long-term sustainability and competitiveness of the aquaculture sector.																							
1.2.1.Laying down the foundations of a structural change in the sector and multi-functional fish farming, this is responding to the challenges of the ever-changing economical and social environment.	1	1	2	2	NR	1	2	2	2	0	1	-1	1	NR	1	2	2	0	2	2	1	2	2
1.2.2. Increasing the productivity and effectiveness taking the environmental protection aspects into consideration primarily by improving the technical and technological standard in the aquaculture sector.	1	2	NR	NR	2	1	1	0	1	1	1	1	1	1	1	NR	2	1	1	0	2	1	1
1.2.3. Expanding the possibilities of multifunctional fish farming.	1	1	2	2	NR	1	2	2	2	1	1	0	1	1	1	2	2	0	2	2	1	2	2
1.2.4. Expanding the possibilities of direct sales in fish producing farms.	NR	1	2	2	1	2	2	NR	NR	-1	-1	0	NR	NR	NR	1	1	NR	2	2	1	2	1
1.2.5. Maintaining working places and improving the working and safety conditions and the salary of the employees of the aquaculture sector.	NR	NR	1	NR	1	1	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	2	1	NR	NR	NR	NR	NR
1.3. Ensuring the long-term sustainability and competitiveness of natural water fisheries in order to maintain the optimal bioplogical state of natural waters and the livelihood of fishermen and other participants of the fisheries sector.																							
1.3.1. Increasing the salaries and preserving the working places of fishermen of natural waters .	NR	NR	1	NR	1	1	NR	1	2	NR	NR	-1	NR	NR	1	NR	2	1	2	2	NR	NR	1
1.3.2. Conservation of fishing traditions and renovation and development of fishing gears and equipment without quantity expansion.	1	1	2	2	2	NR	1	NR	1	NR	NR	NR	NR	1	1	NR	NR	1	NR	1	NR	NR	NR
1.3.3. Slowing down the degradation of natural aquatic and wetland habitats, restocking indigenous species and reducing the overpopulation of invasive fish species .	2	2	1	2	2	NR	NR	2	2	1	1	NR	NR	1	2	2	NR	NR	NR	NR	NR	1	NR
1.4. Increasing the level of Hungarian fish consumption and facilitate healthy human nourishment this way by producing and marketing healthy fish products with high biological value; increasing the product scale and added value of the processed fish products.	1	-1	1	2	NR	2	2	NR	NR	-1	-1	-1	0	NR	NR	1	1	0	1	1	2	2	1
1.5. Improving the competitiveness of the fish processing sector.																							
1.5.1. Increasing the productivity and effectiveness in the fish processing industry primarily through improving the technical and technological standard.	NR	-1	-1	NR	NR	1	NR	NR	NR	-2	-1	-1	0	-1	NR	1	1	-1	0	2	2	1	1
1.5.2. Improving the hygienic and working conditions and the salaries of the employees in fish processing plants and reducing the negative environmental impacts.	NR	NR	1	NR	1	1	NR	NR	NR	1	1	0	1	1	NR	NR	0	NR	NR	NR	NR	NR	NR

Annex 1: Sustainability evaluation matrix of the priorities of the NFSPH (continued from the previous page)

PRIORITIES	*Holistic, overall and general values*							*Environmental and natural aspects and criteria*									*Economic aspects and criteria*						
	H1	H2	H3	H4	H5	H6	H7	K1	K2	K3	K4	K5	K6	K7	K8	K9	G1	G2	G3	G4	G5	G6	G7
	Local and regional sustainability	Global sustainability	Eco-social rural development,	Value protecting, diversification of fish	Carefulness and altruism	Ethical behaviour	Conscious food production and	Nature conservating fish farming	Organic fish farming	Prevention and minimising of	Minimising further negative impacts	Dematerialization	Re-cycling and re-use	Economical use of exhausting	Value protecting fish farming methods by	Sectorial integration	Prospering rural economy	Integrated product policy	Produce in place, consume in place'	Work in place'	Quality products, innovations	Diversified rural product supply	Regional co-operations for
1.6. Ensuring the long-term sustainability of the Hungarian fisheries sector based on research and development activities and the formation of Producers' Organizations, in the framework of collective actions.																							
1.6.1. Ensuring the sustainable utilization and protection of fisheries resources.	2	2	2	2	2	1	2	2	2	1	NR	1	1	2	2	1	1	NR	NR	NR	NR	NR	NR
1.6.2. Ensuring and improving the market transparency, quality, food safety and traceability of aquaculture products.	1	NR	NR	NR	1	2	2	NR	NR	1	1	NR	NR	NR	NR	1	NR	1	NR	NR	1	NR	1
1.6.3. Developing technical skills and encouraging partnership based on common programmes between researchers and the fisheries sector.	2	2	2	2	2	1	2	2	2	1	NR	1	1	2	2	1	1	NR	NR	NR	NR	NR	NR
1.6.4. Improving the standards of Producers' Organizations and increasing their number.	NR	NR	1	NR	1	2	1	NR	NR	NR	NR	NR	NR	NR	NR	1	1	1	NR	NR	NR	NR	2
1.7. Increasing the domestic consumption of fish and fish products, and ensuring the harmony between supply and demand.																							
1.7.1. Increasing the effectiveness of Community-level marketing actions, which are based on market surveys and analyses.	NR	NR	1	1	1	2	2	NR	NR	NR	NR	NR	NR	NR	NR	1	2	2	2	NR	2	2	1
1.7.2. Increasing the social acceptance of the fisheries sector.	2	NR	1	1	1	1	2	2	2	NR	NR	NR	NR	NR	2	2	1	2	NR	NR	1	NR	2
1.8. Ensuring the competitiveness of Hungarian fish products produced in the market.																							
1.8.1. Introducing new and new type freshwater fish species into the domestic market.	-1	-1	1	NR	0	1	1	-2	-2	0	0	?	NR	NR	-1	1	1	2	1	1	2	0	1
1.8.2. Increasing the quality standard of all products of the fisheries and aquaculture sector.	1	NR	1	1	2	1	2	0	0	1	1	-1	0	NR	NR	2	1	2	NR	NR	2	2	1
1.8.3. Increasing the consumption of organic fish products coming from domestic production.	2	2	1	2	2	2	2	2	2	1	NR	2	1	2	2	1	1	1	NR	NR	1	2	2
1.8.4. Developing the export market possibilities of domestic fish producers, improving their international trading connections and acknowledgement.	2	NR	1	1	1	1	2	NR	NR	NR	NR	NR	NR	NR	NR	NR	1	1	-2	0	2	1	NR
1.9. Improving the competitiveness of the Hungarian fisheries sector based on the practical application of national and international scientific research results.																							
1.9.1. Spreading production technologies and methods with more economic and biological effectiveness and less environmental impacts.	NR	NR	0	NR	NR	1	1	1	0	1	NR	-1	?	?	?	2	1	1	?	NR	2	2	1
1.9.2. Laying down the scientific foundations of the diversification and multifunctionality of fish production.	2	2	2	2	2	1	2	2	2	1	NR	1	1	2	2	1	1	NR	NR	NR	NR	NR	NR
1.10. Ensuring the good health conditions for the domestic fish fauna; prevention of diseases and epidemics causing extreme economic and environmental damages.	1	1	NR	NR	1	1	NR	2	NR	NR	NR	-1	NR	NR	NR	NR	NR	NR	NR	NR	2	NR	NR
1.11. Ensuring the protection of domestic fish gene pools.	2	2	1	2	NR	1	1	2	2	NR	NR	NR	NR	2	2	1	NR	NR	NR	NR	1	1	1
1.12. Supporting the growing role of angling as a recreational activity.	0	NR	2	2	0	1	1	-1	-1	-2	-1	-1	NR	-1	NR	1	2	NR	2	1	NR	2	NR

Annex 2: Environmental evaluation matrix of the measures of the OPF (continued on next page)

OPF MEASURES	*Environmental aspects*																	
	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	E18
	Reduction of air pollution	Reduction the impacts of global air pollution	Protection of surface waters, integrated water basin management	Protection of groundwaters	Protection of the soil and geological values	Protection against the effects of extreme climatic events and environmental	Protection of areas under nature protection of national or local importance	Protection and sustainable utilization of Natura 2000 and environmetally	Nature conservation of forests	Propagation of organic farming methods	Development of sustainable regional farming methods and complex	Increasing the use of renewable energy sources	Increasing the efficiency of materials and energy use	Mitigation of chemical and microbiological risks	Health promotion and increasing food-safety level	Promotion of the environmental awareness of the population and	Conservation and sustainable use of landscape heritage	Improvement of environmental quality of settlements and development of
Priority axis 2: Aquaculture, inland fishing, processing and marketing fisheries and aquaculture products																		
2.1.a. Aquaculture (construction of new capacities of fish production and storage)	-1	0	2	1	1	2	1	1	1	2	2	NR	NR	2	1	1	2	NR
2.1.b. Aquaculture (value added reconstruction and modernization of capacities of fish production and	0	0	2	1	1	1	2	2	1	2	2	NR	NR	2	1	1	1	NR
2.1.c. Aquaculture (investments on equipment for fish production and transportation)	-1	-1	NR	NR	-1	NR	-1	-1	NR	NR	NR	0	NR	NR	1	NR	NR	-1
2.1.d. Aquaculture (establishment and development of the infrastructure in fish farms)	-1	0	2	2	0	NR	NR	NR	NR	NR	NR	1	0	NR	1	NR	1	NR
2.1.e. Animal health measures (diasgnostics)	NR	NR	1	NR	NR	NR	1	1	NR	1	1	NR	NR	2	2	1	NR	NR
2.2.a. Inland fishing (purchasing and reconstruction of fisheries equipment and fishing gears: fishing boats and vessels, freezing apparatus, trailer)	0	-1	-1	NR	NR	NR	-1	0	NR	NR	1	NR	NR	2	2	NR	NT	NR
2.2.b. Inland fishing (purchasing equipment and appliances for the improvement of spawning conditions and reproduction)	NR	NR	NR	NR	NR	NR	1	1	NR	1	1	NR	NR	NR	NR	NR	NR	NR
2.2.c. Inland fishing (conservation and promotion of fisheries traditions, educational activities)	NR	NR	NR	NR	NR	NR	1	1	NR	2	2	NR	NR	NR	NR	2	2	1
2.3.a. Fish processing and marketing (building, reconstruction and modernization of fish processing plants)	-1	-1	-2	0	-1	NR	NR	NR	NR	1	1	NR	-1	0	1	1	-1	1
2.3.b. Fish processing and marketing (measures on animal welfare, hygiene, public sanitary conditions and food safety)	1	NR	NR	NR	NR	NR	NR	NR	NR	1	1	NR	NR	2	2	1	NR	NR
2.3.c. Fish processing and marketing (development and production of new products and product lines)	-1	NR	NR	NR	NR	NR	NR	NR	NR	1	1	NR	-1	2	2	2	NR	NR

Annex 2: Environmental evaluation matrix of the measures of the OPF (continued from previous page)

OPF MEASURES	*Environmental aspects*																	
	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	E18
	Reduction of air pollution	Reduction the impacts of global air pollution	Protection of surface waters, integrated water basin management	Protection of groundwaters	Protection of the soil and geological values	Protection against the effects of extreme climatic events and environmental	Protection of areas under nature protection of national or local importance	Protection and sustainable utilization of Natura 2000 and environmetally	Nature conservation of forests	Propagation of organic farming methods	Development of sustainable regional farming methods and complex	Increasing the use of renewable energy sources	Increasing the efficiency of materials and energy use	Mitigation of chemical and microbiological risks	Health promotion and increasing food-safety level	Promotion of the environmental awareness of the population and	Conservation and sustainable use of landscape heritage	Improvement of environmental quality of settlements and development of
Priority axis 3: Collective actions																		
3.3.a. Collective actions (improving the competitiveness or the sustainability of the sector, based on R&D activities)	NR	NR	-1	NR	NR	NR	1	1	NR	1	1	NR	NR	1	1	NR	NR	NR
3.3.b. Collective actions (creating the network of technology transfer)	NR	NR	-1	NR	NR	NR	1	1	NR	1	1	NR	NR	1	1	NR	NR	NR
3.3.c. Collective actions (creating specific database for market information, establishing Producers' Organizations)	NR	NR	NR	NR	NR	NR	NR	NR	NR	2	2	NR	NR	NR	1	NR	NR	NR
3.4.a. Promotion (launching measures for encouraging the consumption of fisheries and aquaculture products and improving the image of the fisheries sector, introducing new fish species into the market, production and qualification of organic products)	NR	NR	NR	NR	NR	NR	NR	NR	NR	2	2	NR	NR	1	1	2	NR	NR
3.4.b. Promotion (development of quality assurance, quality certifications, standards; conducting market surveys)	NR	NR	NR	NR	NR	NR	NR	NR	NR	2	2	NR	NR	2	2	2	NR	NR
3.5. Pilot projects (applying the result of scientific researches, alternative methods for fish production in fish ponds, reducing negative environmental impacts)	NR	NR	NR	NR	NR	NR	?	?	NR	1	2	1	1	0	1	1	1	NR
Priority axis 5: Technical assistance																		
Tenders, project-generating, professional reports, exchange of experience, improving environmental awareness	NR	NR	NR	NR	NR	NR	NR	NR	NR	1	1	1	1	1	1	2	1	NR

THIS DOCUMENT WAS PREPARED WITH THE SUPPORT OF THE EUROPEAN UNION AND THE GOVERNMENT OF THE REPUBLIC OF HUNGARY IN THE FRAMEWORK OF AGRICULTURAL AND RURAL DEVELOPMENT OPERATIONAL PROGRAMME OF THE NATIONAL DEVELOPMENT PLAN

Environmental Report

to the Strategic Environmental Assessment of the Hungarian National Fisheries Strategic Plan of Hungary and the Operational Programme for Fisheries

April 2007