LIFE Integrated projects 2014

Stage 2 – FULL PROPOSAL

Technical application forms

Part B – technical summary and overall context of the project

SUMMARY DESCRIPTION OF THE PROJECT (English version)

1. Overall context/background/geographical scope

IP itself:

The LIFE-IP will contribute significantly to the implementation of the European Water Framework Directive (Directive No. 2000/60/EC, WFD) and the relevant 'Bewirtschaftungsplan Hessen 2009-2015' (River Basin Management Plan - RBMP) as well as the 'Beiträge zum Bewirtschaftungsplan und Maßnahmenprogrammen für den internationalen Bewirtschaftungsplan Rhein 2016-2021' in Rhineland-Palatinate' for the river Lahn with all relevant objectives (e.g. good ecological status). It will be carried out in a multi-regional catchment area that crosses several administrative boundaries and integrated national, regional and local level authorities. The IP will exploit synergies between policies mainly on the following sectors:

- inland waterway management
- flood protection
- nature conservation
- sustainable socio-economic use
- biodiversity
- recreation, leisure and tourism.

A key point is the opportunity to create a **pilot concept on how to deal with the re-categorization of rivers as inland waterways of minor importance for waterborne transport** (instead of inland waterways with priority importance for waterborne transport) and how to **"utilise" this re-categorization for promoting water-ecological and nature protection purposes**. The river Lahn is a tributary of the river Rhine. It has a catchment area of 5,931 km^2, which is located in the German Federal States of Hesse (4,757 km^2), North Rhine-Westphalia (181 km^2) und Rhineland-Palatinate (993 km^2). On its 240 km route to its confluence with the Rhine at Lahnstein, the river Lahn flows mainly through the Central Hesse region. The lower part (148 km) is designated as inland waterway (Binnenschifffahrtsstraße).

Currently, the ecological status and potential of the Lahn river quality assessment according to WFD demands is rated as "unsatisfactory" or "bad", according to the WFD requirements. Furthermore, the "National report on the status of floodplains 2009" ("Auenzustandsbericht 2009") of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety reports a "significantly modified" to "heavily modified" status of floodplains for the major part of the Lahn river's watercourse. Its lower part has for more than 100 years been used as inland waterway for transport of goods, but in recent years the transport volume has considerably decreased, leading to the categorization as waterway of minor importance. From a water-ecological and nature conservation point of view, this change offers a window for opportunities to restore the river into a more natural watercourse system. To make this change possible, innovative and dialogue orientated solutions and integrated investment plans combining different sources are necessary. The solutions proposed can be transferred to several other rivers in Germany which will no longer be of priority importance for waterborne transport. The situation at the Lahn may also be comparable to the one in other European countries (e.g. Poland, France, Belgium, UK) for which the LIFE-IP can serve as a pilot area for testing this transformation process.

The catalogue of synergetic and integrated measures will be financed by complementary funds, in particular those which require vast and long-term investment packages. The planning and coordination tasks for a successful implementation of the RBMP are manifold and can be described as follows:

It is a densely populated and culturally rich area, with about 1 million people living only in the Hesse part of the catchment area, the number of persons living per km² lies between 157 to 488 persons. Furthermore the Lahn valley constitutes a popular tourist area, with 2.3 million overnight stays in

2012, and a tourism related sales volume of almost EUR 1.2 billion in the same year. Different studies estimated accurately the **significant ecosystem services provided by the river** in terms of tourist effects (e.g. national TEEB study 'Lahnthal Tourism'), underlining the importance of the river for the regional socio-economy. Due to the direct hydrological connection to the Rhine as one of the most important rivers within Europe various measures of the International Commission for the Protection of the Rhine (cp. http://www.iksr.org), such as the promotion of salmon and eel, take place in the water system of the Lahn river – with positive effects for the whole Rhine catchment area. Accordingly, the IP will significantly contribute to the implementation of the EU Strategy on biodiversity protection.

In order to achieve a successful project implementation all relevant stakeholders have to be aggregated under one strategic umbrella and a multilevel, dialogue-oriented approach is needed.

Complementary actions:
Complementary actions and core-actions of the IP show relevant synergies through combination of funds from different sources. This should be understood not only as thematic synergies, but does also affect the contract management, which can be done in a multilevel approach. Amongst the blueprints for this joint contracting ranges the LIFE Project "My favourite River (ENV DE 011), which piloted such multipurpose contractual approaches at the river Neckar. However, the rollout of this approach in the context of the IP will include more administrative levels and will represent a more significant scale both in terms of budget and timeline.

The following complementary actions will substantially contribute to the project objectives by implementing concrete measures in different WFD related fields for the Lahn river:

Flood protection: The present draft Flood Risk Management Plan, recently developed under the European Flood Risk Management Directive, focuses particularly on flood area management and a precautionary provision of land within the retention areas (CA.22+23). The Lahn itself has a significantly higher flood risk compared to its tributaries.

Nature protection, biodiversity: The high number of Natura 2000 areas at the Lahn and its tributaries as well as high nature value areas in the immediate vicinity of the river, with relevant water-bound habitat types and species of the Habitat Directive (also listed in the German Priority Action Framework) will be addressed with conservation measures by the LIFE-IP and CA.

Fish population/fishery: The Lahn and some of its tributaries are described as „fishing waters", used for recreational fishery. The Lahn is of relevance as habitat for migratory fish species with particular focus on ensuring linear patency, delineated by the ICPR). Several local fishermen and fish conservation associations will be involved in planning and implementation.

Agriculture: pressures come from diffuse pollution and hydromorphological alterations of banks and floodplains. Several complementary actions refer to a targeted consulting of farmers to use the agro-environmental measures of the EAFRD 2014-2020 for 'creation of riparian stripes', both in Hesse (HALM programme) and Rhineland-Palatinate (EULLE programme).

Sewage treatment: in Rhineland-Palatinate several measures will be carried out to improve existing sewage systems in order to reduce diffuse pollution and immission of treated water to the river system.

2. Project objectives

The main overall objective of the project is to achieve a good ecological status/potential of surface waters in the catchment area of the Lahn in a comprehensive, synergetic, multilevel and multi-stakeholder approach.

Another overall objective specific for the catchment area of the Lahn is to elaborate a "Lahn-Concept", covering different thematic studies and an intensive dialogue with all stakeholders on how to manage the categorization of the river as inland waterway of minor importance for waterborne

transport and how to operationalise this process for water-ecological and nature protection purposes.

In detail, the objectives of the actions and measures of the LIFE-IP can be divided into three groups:

- Objectives concerning water ecology, water and sediment quality as well as sustainable use and development of the river
- Objectives concerning natural water retention
- Objectives concerning multilevel governance with a regional focus including modes of stakeholder involvement and capacity building

The specific objectives on water ecology, water and sediment quality and sustainable use and development of the river can be formulated as follows:

To improve the ecological status of the Lahn and its tributaries (incl. sediments, structural diversity, linear patency, invasive alien species, etc.), this includes

- the development of near-natural water conditions by revitalisation of embankment structures and floodplains (Actions C.3 to C.6.C) both in open and in diked river stretches, in order to re-connect the river to its surrounding territories according to the objectives of the WFD.
- the creation of structural diversity - wherever possible the structural diversity of the river will be enriched and biodiversity increased in order to create synergies between WFD and Natura 2000 objectives (Actions C.7.A to C.7.C, also C.1,C.3 to C.6.C).
- the connecting of backwaters and lateral water bodies as key element for the sustainability of diversification measures, as these areas provide habitats for fish breeding and juvenile fish populations and shelter in case of flood events.

To identify sources of pollution and to improve the water quality of the Lahn and its tributaries, including specific investigations in the Gelbach river system (a tributary to the Lahn, cp. Action A.3 and C.12) and identification of substantial diffuse pollution sources in the catchment area

To prepare and implement measures for linear patency on different categories of barrages and weirs (with different responsibilities at Federal or Länder level), this includes

- different measures to restore linear patency, both at smaller weirs with best practice solutions for fish passages (Actions C.1, C.10, C.11, C.13) and shipping weirs. The river Lahn is part of the Rhine catchment area and therefore able to host priority species according to HD annexes like salmon, eel and sea trout, which will be particularly addressed. The connection of the Rhine to the Lahn at the weir Lahnstein will be given special attention (complementary Actions CA.25+CA.26)

To investigate and improve structural diversity in river stretches with existing weirs, this includes

- an enrichment of river stretches with dead wood, small islands, fish protecting structures along the embankments, bushes and trees for enabling different organisms from juvenile to adolescent age to live in the river (Actions C.6.C).
- developing guidance and providing information for other rivers with the same situtation.

To promote sustainable tourism by providing adequate infrastructure and guidance for leisure canoeing at the Lahn; this includes

- to provide well constructed facilities to carry canoes upstream or downstream to overcome existing weirs through portages.
- to organize and guide tourist flows in accordance with the conservation goals of management plans (WFD, Natura2000), in order to insure that they find attractive conditions for their leisure activities, but at the same time get aware of conservation needs and ecological aspects.

Objectives concerning natural water retention can be described as follows:

To investigate the options for the creation of retention areas along the river and creating ecosystem services; this includes

- a detailed assessment and negotiation of land availability along the river and its tributaries (action C.4) in pre-defined areas as indicated in the RBMP, which is increasingly difficult due to high prices for land and competing land use options. In the densely populated catchment area of the Lahn, it will be difficult or even impossible to fully restore full natural retention. Nevertheless some options remain for natural retention in order to contribute also to the Flood Management Directive objectives and to create values in terms of significant additional ecosystem services in the catchment of the Lahn.

To re-establish the natural regulation wherever possible; this includes

- negotiations on possible options with different stakeholder groups (Actions A.1, F.2, E.1 to E.10) in order to identify river stretches and weirs where this process can be started with first implementation measures. Due to the dense settlement pattern in the area, many different questions have to be addressed (e.g. impacts on groundwater level with regard to safety of cultural heritage, infrastructure facilities, private housing areas, etc.)

The specific objectives concerning regional governance including modes of stakeholder involvement and capacity building can be formulated as follows:

To establish, conduct and maintain a dialogue-oriented process with different stakeholder groups in order to achieve a consensus of major management objectives

- This concerns particularly the mediation between the interests of ecological water development and nature conservation on the one side and flood control, navigation, and agriculture on the other side. The goal is to achieve a joint planning of measures and multiple benefits for all parties involved via comprehensive and continuous consultations with all relevant stakeholders.

To elaborate integrated pilot strategies and implementation plans on how to organise and finance inland waterways in order to achieve the 'good ecological status/potential'

The lower part of the Lahn, an inland waterway nowadays of minor importance needs innovative concepts on how to deal with the re-categorization and to ensure legal obligations with regard to other objectives, such as flood protection, hydropower production (Action A.1). Different methods will be applied to involve all necessary stakeholders in the development of these concepts, e.g. by Round Tables, bilateral consultations, regional and international expert rounds to exchange knowledge and discuss options to act. The continuous cooperation with the different stakeholders in the LIFE-IP offers the opportunity to reconcile the different (legal) competences and property rights at the river and to achieve reliable cooperation structures between all sectors involved. One of the most important ones is to enhance the cooperation between the Federal Waterways and Shipping Administration with the Länder administrations from different sectors. The concepts, methods and results developed within the LIFE-IP will serve as pilot cases for many other waterways in Germany and Europe (Actions E.7 and E.2).

To build up and strengthen new capacity at the authorities involved; this includes

- to systematically strengthen the planning departments of the authorities involved by employing new staff members who will prepare and coordinate all activities of the LIFE-IP in cooperation with their experienced colleagues. The goal is to provide regular interadministrative exchange on the 'Lahn-Concept' and regional planning and implementation measures (cp. Actions E.6, 7, 8) thus enabling new staff members to rapidly develop knowledge and skills to successfully manage the project's activities. A particular focus will be directed towards the development of applicable concepts for launching measures for dismantling (at best) or alteration of weirs and related questions.
- to contribute to capacity building and best practice for implementing the WFD at regional level by strengthening the interaction between nature conservation, agriculture and water

management authorities by defining the measures in common planning groups (action F.2) with the objective to carry out cooperative actions (several A- and C-Actions).

To disseminate the results and pilot concepts on alternative usage of inland waterways to other interested regions/catchments in Germany and Europe; this includes

- the organisation of information events for experts to present and discuss the results of the different studies, e.g. the different aspects of the 'Lahn Concept', the sediment cadastre, sustainable tourism concepts for the Lahn and its tributarie.

The goals of the 'Complementary Actions' (CA.1 to CA.26) will support the overall project goal and the specific objectives indicated above, by providing activities and results, which cannot be financed within the LIFE-IP due to several reasons (vast investments, significant land purchase, current uncertainties at planning level, etc.), but are part of the "Programme of Measures" for implementation of the WFD. All complementary measures have been carefully checked in order to bring an added value to the LIFE-IP and to fit into the objectives of the RBMP. In detail they contribute to the following targets:

Flood protection

- to reduce or prevent flood-related adverse effects on human health, the environment, cultural heritage, economic activity and considerable material assets
- to increase the number and surface of retention areas

Nature protection

- to achieve and promote the objectives of the European Biodiversity Strategy in 2020, the UN Decade of Biodiversity 2011-2020 and the Hessian Biodiversity Strategy
- to achieve an improved conservation status of water-bound habitat types and species according to the Habitat Directive and its annexes
- to promote ecological networks and ecological connectivity and to support of the goals of the 'Green Infrastructure' strategy of Europe

Fishery / Fish populations

- to restore patency and ensure linear continuity (in line with "Master Plan Migratory Fish Rhine" 2009 ICPR, (http://www.iksr.org/uploads/media/Bericht_179d_03.pdf) both at the Lahn river as well as in its tributaries

Agriculture

- to increase number and area of riparian and erosion protection strips to decrease diffuse pollution
- to promote the application of the agro-environmental schemes of the Land Hesse and Rhineland-Palatinate (HALM and EULLE)
- to promote ecological and more environmentalyl friendly agriculture, grassland use in alluvial plains and catch crops in agriculture

River restoration

- to dismantle weirs and barrages (or to start the processes leading to dismantling of weirs) wherever possible and to develop concepts for sustainable re-use e.g. for tourism purposes or other uses (in cooperation with municipalities)

Actions and means involved:

Actions to be financed by LIFE

The project follows a defined structure of providing planning and human ressources to the authorities involved in order to manage and co-ordinate the process of re-categorization of the inland waterway and preparation of studies (see Actions A.1 and A.2) as well as preparing the implementation of measures. In order to balance the preparatory and implementation actions several preparatory actions will be carried out already in the first phase of the project. The results will then be taken up in phases 2 to 4 for concrete implementation. The LIFE-IP follows the approach described in the Concept Note and will cover four main categories of action which can be described as follows:

A) Concept development / Support of planning procedures
All involved beneficiaries lack staff capacity in order to accelerate the implementation of the RBMP for the catchment area of the river Lahn. Therefore, the systematic strengthening of staff resources within the administrations of the Ministry of Environment of Hesse and its sub-ordinated authority 'Regierungspräsidium' (RPGI), the Federal Waterways and Shipping Administration (WSV, here represented by WSA Koblenz), the Federal Institute of Hydrology (BfG) and the Ministry of Environment, Agriculture, Nutrition, Viniculture and Forestry of Rhineland-Palatinate (MULEWF) its sub-ordinated authority Struktur- und Genehmingungsbehörde (SGD) will be covered by the LIFE-IP budget. The new staff to be employed will enforce the teams working on WFD topics and its interfaces to waterway traffic, nature conservation (Natura 2000, Biodiversity Strategies), agriculture (agro-environmental schemes, erosion, diffuse pollution), hydromorphological aspects (sediments) and questions of spatial and municipal development in general.

For the LIFE-IP a particular focus will lie on the development of the 'Lahn-Concept' (action A.1), a pilot strategy and implementation plan for the future management of re-categorized waterways in Germany, which can serve as pilot for other European waterways, too. It will be carried out by the WSA Koblenz with contributions from the two Ministries of Environment of Hesse and Rhineland-Palatinate and the BfG. Most recently, 2,800 km of inland waterways have been downgraded to waterways of minor importance according to their present use and importance for the transport of goods. This means in practice, the size and weight of ships decreases considerably which reduces the need for keeping certain water levels. As a consequence, several weirs may become obsolete for navigation purposes. This development creates the opportunity to accelerate the implementation of the WFD objectives for the Lahn as the economic pressure by transport on the river is reduced. The project will sound out, which effects the re-categorization has on the river itself and within the alluvial plains, both with regard to technical and to socio-economic aspects, e.g. the clarification of future water levels with all relevant implications on settlements, agriculture, leisure use.

The objectives of society and stakeholder groups within this transformation process will have to be discussed and reconciled, having in mind that the 'corridor' in which the solutions should be identified is the set of targets and measures pre-defined by the WFD and other European policies like the Natura 2000 network or the EU2020 Strategy. The 'Lahn-Concept' will be the basic preparatory action of the LIFE-IP, which will be ongoing throughout the complete runtime of the project. It will represent the framework for defining a set of goals and measures on how to reach a sustainable re-categorization of the waterway. Finally, the goal is to present the 'Lahn-Concept' to all stakeholders and the wider public within the framework of a 'Lahn River Conference' at the end of the project. At this public event, a common declaration should be signed which confirms the political will of all involved parties to reach the commonly defined goals and to create a "Living Lahn River" for future generations.

Another overall action for the LIFE-IP will be the sediment cadastre and management concept (Action A.2), which will provide the basic data and knowledge for improving the water quality of the Lahn. The assessment of sediment quality (and the related risks of sediments being pollutant sinks) will be summarised and used as obligatory source of information to feed in and prepare construction works at the river, thus preventing future immission of accumulated pollutants to the river.

Additionally to the overall preparatory concepts described above (A.1 and A.2) a set of practical preparatory planning processes will be carried out within the LIFE-IP, e.g. a study on future

management of locks for fish passage, a study on retention areas at the tributary river Aar or the spreading of invasive alien species at revitalised river stretches, species related studies (grayling, gib head, eel turbine management, etc.) or the study on dioxine and PCB immissions in one tributary river system, just to mention a few.

The staff capacity at regional level (RPGI and SGD) provided by the LIFE-IP will mainly have to coordinate the contracting and supervising of those studies and collect and combine results in order to accelerate the WFD implementation in their areas. They will moreover have the task to facilitate feedback and contributions to the overall Lahn-Concept as well as to prepare concrete implementation measures in their regions (see section C).

B) Conducting a dialogue with relevant stakeholders

The catchment area of the river Lahn is a densely populated area with a longstanding historic and cultural development, which results in complex legal framework conditions at the river. For its uses many cultural heritage sites along the river have to be safeguarded, close vicinity of settlements, motorways and railway connections (e.g. Koblenz – Gießen in the lower part of the river) are situated in the Lahn valley. Any modification of the existing infrastructure elements may lead to strong reactions of stakeholders in all mentioned sectors, as there is little space (in its literal meaning) left for changes.

The pressure on every parcel of land is high, as all actors seek for possibilities to develop e.g. municipalities, agriculture, nature conservation. This is also an important reason why implementing the RBMP in the first phase 2009-2015 proved to be difficult. In order to achieve satisfactory solutions, it will be important to conduct participation processes, 'Round Tables', which take time, but offer benefits at the long-term. The LIFE-IP will help to provide capacities to intensify the dialogue with the stakeholder groups and to build an atmosphere of confidence and reliability between the administrations and authorities involved and the stakeholder groups. This is possible, mainly because of the long runtime of the LIFE-IP and will be 'translated' to the stakeholder groups at regional level by common planning processes as a regular component of implementation measures (action F.2).

In addition, a specific capacity building module will contribute to disseminate the knowledge and results of the LIFE-IP to all involved sectors, by organising expert conferences and workshops, e.g. workshop on sediment management and other thematic workshops (cp. action E.6, E.8) and to ensure timely publication of relevant results in appropriate journals. Two 'information trips' at the river are foreseen by boat, timely related to the 'Lahn River Conferences' which will show particular measures implemented during the LIFE-IP and will discuss both methods and results. Another capacity building element will be 10 – 12 guided tours along the river or its tributaries for technical or administrative experts on specific topics. The target groups for the capacity building measures are both experts from regional and national level and from different administrative sectors.

A guidance document on the main stakeholder aspects will summarise the outcomes of this part of the project.

C) Preparing and carrying out concrete WFD implementation measures

Up to now the implementation of the RBMP in both Hesse and Rhineland-Palatinate lags behind the originally foreseen time schedule. This is due to the abovementioned restrictions in the catchment area and the long planning phases, which are necessary to prepare real implementation measures. For the first project phase of the LIFE-IP, different concrete measures have been selected for which the planning and approval of measures has already been carried out or is likely to be done in a 6-12 months' timeframe.

For the upper part of the river, which had not been modified as a navigation route, the necessary measures to achieve "good status" have been described in the 1st RBMP and in the draft 2nd RBMP. Both documents remain the main reference document for all implementation measures.

Within the LIFE-IP, the two regional authorities RPGI for Hesse and SGD for Rhineland-Palatinate will lead the process of implementing concrete measures on the ground, as the measures are located in their geographical area of responsibility.

The measures proposed cover a wide variety of aspects and topics, e.g. improving of structural diversity or linear patency (C.3 to C.6.c), a combination of best-practice and innovative measures for fish species and fish migration (C.1, C.7.b, C.7.c) or innovative measures on specific topics like invasive alien species at revitalised river stretches (C.7.a).

As a general approach of river maintenance and management, those measures are given priority, which foster the momentum of the river and can initiate a favourable structural development in the neighbouring river stretches. This approach is mainly applied in the upper stretches of the river, which are classified as natural water bodies.

For the lower part, which nowadays has minor importance for waterborne transport, the majority of river stretches of the Lahn are classified as 'heavily modified'. The water bodies are weir-regulated and only have few free-flowing sections. In particular the modified hydrological regime has a significant impact on the biological, ecological and trophic status of the river and its tributaries.
In order to achieve a good ecological status/potential, a significant reduction of the regulated water quantity in the Lahn and its tributaries has to be achieved. Due to the general situation at the weirs huge changes of the current conditions are regarded as impossible and can only be achieved with negotiation and time. For example, currently more than 75% of the existing weirs are used for the generation of hydropower, furthermore the general groundwater level has risen. Therefore a concretisation of common goals and adequate measures (for complementary funding) in the weir-regulated river stretches will be done in the course of the LIFE-IP (mainly by carrying out action A.1 and by exchange with actions E.7 and F.2).

In order to achieve short-term improvements for fish migration and other structural aspects in the weir-regulated parts of the Lahn, two particular measures have been defined for the LIFE-IP:
- an innovative way of using existing locks for fish migration by organizing a minimum flow of water, strong enough to serve as 'attraction current' during the night (action C.1).
- an innovative way of turbine management at hydropower plants for eel to reduce negative impacts in case of downstream migration (action C.7.C).

The ongoing conceptual work of all involved administrations will create synergies and guarantee a high level of transparency as well as public awareness for the concrete implementation measures as well as for the overall LIFE-IP.

D) LIFE-IP Inter-administrative Coordination and Steering Board and public relations work
The implementation of the LIFE-IP will require close cooperation between the federal level (BMVI, BMUB) and their subordinated public entities (BfG, WSA/WSV), the government level of German Länder (Hesse with HMUKLV and Rhineland-Palatinate with MULEWF) and their sub-ordinated authorities at district level (RPGI and SGD). Between these 3 levels of administration, exchange and cooperation routines have to be defined and established in order to ensure a smooth implementation of the LIFE-IP. A regular exchange will help to improve mutual understanding between the experts involved.

The organisation of a national 'Round Table' will be linked to the national expert group included in the 'German Working Group on Water Issues' (LAWA). This link will bring additional expertise to the LIFE-IP and will at the same time serve as dissemination platform for the technical and expert aspects discussed in the LIFE-IP. Beside the institutionalized cooperation, a technical exchange will be facilitated by providing a web-based forum for exchange of data, questions and results of the LIFE-IP.

When it comes to implementation measures on the ground it will be necessary to involve the local level with municipalities, landowners and NGOs (e..g. agriculture, tourism, hydropower, nature protection). The cooperation will be transferred to the local level by having regular 'Round Tables' prior to any implementation measure.

To summarize, a central action of the LIFE-IP (E.7) will be to offer new modes for inter-administrative coordination via

- the establishment of an inter-administrative project coordination and steering board with members from all administrative levels,
- the link of exchange meetings to the national 'Round Table' back to back with LAWA meetings,
- the installation of constant inter-administrative communication channels,
- joint expert workshops on implementation issues, including the clarification of legal and financial responsibilities.

The wider public will be informed on the outcomes of the LIFE-IP in 'Lahn River Conferences' (Cp. E.8) which will follow each project phase. They will serve as political platform and will enable an exchange of overall information for all interested stakeholders.

Complementary Actions:

The Complementary Actions will contribute to the overall and specific goals of the LIFE-IP by providing preparatory planning as well as concrete implementation of measures. The classification as complementary measure is mainly due to reasons of financing (huge investment or land purchase) or the availability of other funding sources (EAFRD, national or Länder budgets). The complete list of complementary measures comprises the following measures

No.	Description	Name of water body	Responsible Administration
CA.1	Protection measures for fish populations	Weil, Dill, Seenbach	RPGI
CA.2	Consulting on river management (Weil)	Weil	RPGI
CA.3	Consulting on river management (Lahn,Ohm)	Lahn, Ohm	RPGI
CA.4	Implementation of the management plan (MP) with 100% financing	Obere Lahn, Wetschaft	RPGI
CA.5	Implementation of the MP with 100% financing	Dill	RPGI
CA.6	Implementation of the MP with 100% financing	Ulmbach	RPGI
CA.7	Connecting backwater Lahn Bellnhausen	Lahn	RPGI
CA.8	Synergy measures for linear patency	Kerkerbach	RPGI
CA.9	Ensuring linear patency (Hassenhäuser Mühle)	Zwester Ohm	RPGI
CA.10	Gathering of complete territorial data set (from species protection fund)	Perf	RPGI
CA.11	Planning for measure at Gisselberg (Gisselberger Spannweite, from fishery funds)	Lahn	RPGI
CA.12	Management of the "Lahn Window" (Link to the Homepage and counting of visitors)	Lahn	RPGI
CA.13	Linear patency at weir Weinähr	Gelbach	MULEWF
CA.14	Linear patency at weir Hof Eschenau	Gelbach	MULEWF
CA.15	Linear patency at weir Bruchhäuser Mühle	Gelbach	MULEWF
CA.16	Linear patency at weir Giershäuser Mühle	Gelbach	MULEWF
CA.17	extensive use grasslands (Unterer Erbach, VG Wallmerod)	Erbach	MULEWF
CA.18	renewal of sewage system (VG Nassau),	Lahn	MULEWF

	Reduction of nutrient immissions		
CA.19	Laying in of sewage treatment plant Härtlingen, Reduction of nutrient immissions	Elbbach	MULEWF
CA.20	renewal of sewage system Oberes Mühlbachtal, Reduction of nutrient immissions	Mühlbach	MULEWF
CA.21	Linear patency at weir Scheuerner Mühle, Langauer Mühle	Mühlbach	MULEWF
CA.22	Designation of riparian buffer zones Dörsbach 20 ha, Mühlbach (10 ha), extensive use of river banks	Dörsbach, Mühlbach	MULEWF
CA.23	Retention areas along the river Aar - extensive use of grasslands and river banks	Aar	MULEWF
CA.24	renewal of sewage system Mühlbachtal (VG Nastätten),	Mühlbach	MULEWF
CA.25	Linear patency at weir Lahnstein	Lahn	WSA
CA.26	Linear patency at weir Altenberg	Lahn	WSA
CA.27	Planning for measure at Heuchelheim (Heuchelheimer Banana), financed from fishery fund	Lahn	RPGI

4. Expected results (main outputs and achievements, qualitative and quantitative)

Linked to Actions of LIFE IP (short and long term):

The short-term results (project phase 1) will be the following:

- Set up of a standing, multilevel and common dialogue on the objectives for the further development of the waterway Lahn which will result in an improved communication and cooperation between the Federal Waterways and Shipping Administration and all involved stakeholders
- Baseline assessment of the sediment quality of the Lahn and establishment of the sediment cadastre within the national GIS and database
- Improved linear patency by innovative temporary management concept for fish passage at weir regulated river stretches (weirs still operating) tested and implemented at the lock Lahnstein (management of temporary fish passage through existing locks dt.: 'Fischschleusungsmanagement')
- Improved linear patency in several river stretches and confluences of tributary rivers to the Lahn (2 weirs/obstacles removed)
- Strategies, implementation plans and first measures carried out for improved retention and flood protection along the Lahn and some of its tributaries (surface to be specified after A-Actions)
- Innovative concepts on structural diversification developed and tested within regulated waterway sections (length of diversified waterway sections 3.5 km as pilot)
- Improved habitat quality for different migratory and endangered fish species (e.g. eel, salmon)
- Improved conditions for sustainable recreational use of the Lahn, given the example of leisure canoeing at the Lahn, integrated in an overall concept for sustainable socioeconomic use
- Socio-economic benefits for municipalities and Small and Medium Sized Entreprises in the tourism sector by increased number of tourists
- Wide range of communication and capacity building measures implemented (constant working groups, information meetings, etc.)

The long-term results of the LIFE-IP will be the following:

- Political and contractual agreement on future use and revitalisation status of the Lahn between all involved parties ("Lahn-Declaration"), (see action A.1 / E.8)
- Significant amount of planning procedures and measures implemented in order to reach a 'Living Lahn'
- Better understanding of an overall strategic umbrella and increased mutual trust between the stakeholders involved in order to ensure regular planning processes and efficient implementation of measures
- Long-term communication and implementation routines for measures beyond the LIFE-IP at the Lahn and other Federal waterways established
- Concepts and several measures implemented for improved linear patency along the Lahn and some of its tributaries (5 obstacles removed by LIFE-IP, 10 obstacles removed by complementary measures)
- Innovative concepts developed and tested for improved linear patency in weir regulated waterways for different fish species (length of waterway sections / number of weirs and turbines with better management, max. 27 barrages)
- Significantly improved conservation status of different fish plus other Annex II species and water-bound habitats
- Assessment, concept development and mitigation of invasive alien species and related problems for rivers (at two tributaries of a total of approx. 200 km length)
- Improved spawning grounds and breeding habitats for different characteristic and endangered fish species (4 actions LIFE-IP with different lengths)) – e.g. grayling, gib head, shad, bullhead
- Multi-level governance processes organised (regional round tables, river conferences, etc.)
- Transfer of best practice knowledge to other regions with similar problems ensured

The results of the complementary actions (all project phases) will be the following:

- Planning process at key barrages Lahnstein and Altenberg completed, with the option to implement first measures to realize linear patency
- Implementation of different river management plans at tributary rivers to the Lahn with positive effects for structural diversity, river ecology and retention capacity
- Improved understanding and cooperation with several municipalities along the Lahn river
- Improved linear patency at several tributaries to the Lahn (max. 5 obstacles)
- Substantial reduction of nutrient immission in the lower part of the Lahn
- Improved spawning grounds and breeding habitats for different characteristic fish species – bullhead, grayling, gib head, etc. …
- Substantial use of agro-environmental schemes to buffer rivers and provide space for dynamic development of the river
- Significant increase of ecosystem services generated in the catchment of the Lahn

5. Expected contribution of the project to the implementation of the target plan/strategy

LIFE IP:

The LIFE-IP substantially contributes to achieving a good ecological status/potential in the catchment of the river Lahn and thus, the Rhine district called 'Mittelrhein' according to the

international RBMP until 2021 and for certain stretches and aspects until 2027 (with some delay due to the complex framework conditions described). In detail the level of implementation, competences and coordination is the following:
For the 2nd cycle of RBMP implementation (2016-2021) the working programme "River Basin Management" has been launched by the LAWA in order to further harmonize the work between the different German Länder involved. For better coordination a river basin organization fort the national part of the Rhine catchment, the "Flussgebietsgemeinschaft Rhein" (FGG Rhein), starting at January 2012, has been established in the catchment of the Rhine, with Baden-Wuerttemberg, Bavaria, Hesse, Lower Saxony, Northrhein-Westfalia, Rhineland-Palatina, Saarland, Thuringia, and the Federal Government had been established. At operational level a common Chapeau chapter for the 2nd phase of the RBMPs had been drafted recently.

The measures foreseen within the LIFE-IP will target all relevant aspects of importance for achieving the objectives of the RBMPs: i.e. linear patency within the catchment area of the Lahn for migratory fish species (ICPR concept "salmon 2020"), improvement of the trophical and chemical status as well as enhancing the structural diversity. Depending on the availability of land (and in most cases complementary financial means), the involved authorities have selected measures which create synergies with the Flood Risk Management Directive, the Nitrate Directive and the NATURA 2000 Directives.

By involving all stakeholder groups in a reliable manner, mutual trust will be built up and the awareness of their own responsibility and acceptance for measures for the river will be raised in the common understanding of an overall strategic context. The expectation is that the LIFE-IP not only directly implement measures defined in the RBMP, but also initiates a new awareness of stakeholders on the needs of near natural rivers. As the legal obligation for maintaining the quality of the rivers lies at Federal, Länder or municipal level, the sustainability of the measures implemented at the different surface water bodies is ensured at the long-term.

The Lahn-Concept (A.1) will allow defining the future status of the inland waterway from its mouth up to Badenburg (148 km) with the objective to revitalise and to achieve the good ecologic potential until 2027. It will moreover facilitate cooperation and build up confidence for the time beyond the LIFE-IP. It will be able to bring together all relevant institutions in order to implement the objectives of the WFD and the Flood Management Directive for the Lahn catchment and to contribute to already existing European guidelines for sustainable inland waterway management

Complementary actions:
The complementary actions follow the same objectives as the actions of the LIFE-IP itself until 2027. They focus on creating linear patency, structural diversity, connecting of backwaters, measures for migratory fish species and creation of retention areas, thus serving all main objectives of the RBMP. The measures on reduction of nutrient load and diffuse pollution from sewage systems will considerably improve the trophic and chemical status of the river according to the requirements of the WFD. The integration of farmers and other agricultural stakeholders can be considered an add-on and will help to reduce diffuse pollution of nutrients and pesticides. The targeted promotion of agro-environmental friendly schemes will increase the share of 'users'.

6. Main stakeholders involved in the project
Since the situation of the Lahn River is very complex with many different legal obligations and interests at the river, cooperation of different policy levels and stakeholder groups is needed. Therefore, the project will be implemented in close cooperation between the following organisations and stakeholder groups:

Project Coordinating Beneficiary
Hessian Ministry of the Environment, Climate Protection, Agriculture and Consumer Protection

Project Associated Beneficiaries

Ministry of the Environment, Agriculture, Nutrition, Viniculture and Forestry of Rhineland-Palatinate
Regional Authority Rhineland-Palatinate “Struktur- und Genehmigungsdirektion Nord” (SGD)
WSA – “Waterways and Shipping Office Koblenz” – Wasser- und Schiffahrtsamt Koblenz
BfG – Bundesanstalt für Gewässerkunde – German Federal Institute of Hydrology
Regional Authority Hesse “Regierungspräsidium Gießen”

Furthermore, the following partners will be closely involved in the project – either as target group, implementation partner on national or regional level or supporting partner for dissemination of project results:

On International Level
International Rhine Commission (ICPR)

On National Level
Federal Ministry of Transport and Digital Infrastructure (BMVI)
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Federal Agency for Nature Conservation (BfN)
Federal Waterways Engineering and Research Institute (BAW)
National Rhine Commission (Flussgebietsgemeinschaft Rhein)

On Regional Level
Counties (dt.: Landkreise) Siegen-Wittgenstein, Marburg-Biedenkopf, Gießen, Lahn-Dill, Limburg-Weilburg, Rhein-Lahn-Kreis
Municipalities Bad Lasphee, Biedenkopf, Marburg, Gießen, Wetzlar, Limburg, Diez, Bad Ems, Lahnstein, VG Nastätten, Härtlingen, Nassau etc.

Stakeholder groups potentially important for the implementation process
University of Kassel (developers of flood protection concept for the Hessian Lahn, INTERREG IVB)
Hessian Fishermen Association (Verband Hessischer Fischer), local fishermen associations (Hegegemeinschaften)
Hessian Farmers‘ Association (Hessischer Bauenverband)
Biological Station Siegen-Wittgenstein (NRW)
Hydropower companies (Süwag, AG Hessische Wasserkraftwerke, etc.)
Water&Maintenance Associations (Wasserverbände Lahn-Ohm, Oberes Lahntal/Lahngebiet)
Hessian Sports Association (Landessportbund Hessen)
Tourism representatives (e.g. Lahntal Tourismus Verband e. V.)
Hydropower Associations
Nature conservation NGOs, e.g. NABU Blaues Band, NABU Hessen, NABU Institute for Ecology of rivers and alluvial plains (Institut für Fluss- und Auenökologie), Rathenow, Brandenburg, BUND: Lahnauenprojekt Biedenkopf, Lahnprojekt Marburg, IG Lahn

7. Long term sustainability (including capacity building)

The long term sustainability of the project results will be ensured by implementing an encompassing strategy for dissemination, capacity building and transfer. The main objective of the **dissemination strategy** is to include the most successful measures of the LIFE-IP (that deliver widest ecosystem services and social benefits) into all in RBMPs in other regions in the next planning cycle. Due to the close cooperation with the relevant national ministries BMVI and BMUB, a strong “link” to the “programming bodies” of further planning cycles is given. The funding sources for implementing WFD measures in general come from relevant EU funds (e.g. as part of INTERREG or LIFE projects) or from national funds (Federal programme ‘Blaues Band’, see LoI for complementary funds).

The concept on alternative use of inland waterways may have pilot character for other waterways in Germany and other Member States. The situation at the river Lahn may be comparable to the

situation in other European countries (e.g. Poland, France, Belgium, the UK), where similar problem constellations exist (necessity to maintain or alternatively dismantle old infrastructure, alternative use concepts, etc.). Furthermore, developing and testing new concepts for “cooperation” and “governance” for the WFD implementation process on local, regional and national level in a densely populated area is of strong interest to numerous other European regions, which face a similar challenge: to “reconcile” the requirements of the WFD with many different interests, legal constraints and exploitations of waterways.

To find out what works best, all measures of the LIFE-IP will continuously be monitored and evaluated. The evaluation and monitoring will have qualitative and quantitative elements. Results from monitoring will be disseminated via encompassing capacity building, communication and transfer activities (e.g. E.2, E.3., E.4, E.5, E.6, E.7, E.8).

The main objective of **capacity building** is to transfer the know-how generated as part of the LIFE-IP to the staff of other regions. In the long term, the capacity building measures should ensure that the most successful measures of the LIFE-IP will be included into other RBMPs of the next planning cycle. In order to achieve this, the capacity building programme focuses on three primary target groups

- planning and implementation stakeholders from other German regions
- planning and implementation stakeholders from other EU regions
- political stakeholders on regional, national and EU level

It will be crucial to involve political stakeholders from other regions at an early stage in the project proceedings, in order to ensure their “buy-in” on the project and the uptake of relevant project outcomes into their regional RBMPs. Therefore regular dissemination and exchange events will be organised:

- “national roundtables” on federal level connected to LAWA (with participation of BMVI and other political decision makers on federal and regional level)
- “international roundtables”, composed of representatives from other water LIFE-IPs, water management authorities and stakeholders of other European countries and regions

The potential partners for EU-wide transfer are e.g. ICPDR, European Centre for River Restoration, Rijkswaterstaat, PLATINA Project, NAIADES 2, PLATINA 2 Project, Voie Navigable de France (F), Canal & River Trust (England & Wales) and Scottish Canals (Scotland).

8. a) Is your project significantly climate related? **Yes** **x** **No** ☐

b) Is your project significantly biodiversity-related? **Yes** **x** **No** ☐

If you consider your project to be significantly climate or biodiversity-related (you marked 'yes'), please explain why:

Climate relation

Natural floodplains have the capacity to store large amounts of CO_2, thus contributing to reducing the greenhouse effect and delivering ecosystem services. The rehabilitation of rivers and floodplains, the development of riparian forests, in relation with a modified usage of floodplains will significantly contribute to reducing greenhouse gas emissions (cp. BfN, Scholz, Mathias et al, 2012, „Analyse und Bewertung von Hochwasserretention, Nährstoffrückhalt, Kohlenstoffvorrat, Treibhausgasemissionen und Habitatfunktion“)

Biodiversity relation

A near-natural and continuous river water system creates a variety of flora and fauna habitats. The promotion of self-regulation initiates processes, which follow a natural development order and allow the highest possible timely and spatial variety. Via the connection of habitats/biotopes within the complete catchment area of the Lahn the LIFE-IP will deliver important stepping stones to the “Natura 2000 network” and the Green Infrastructure concept of the EU. Within the project area one of the three last occurrences of *Natrix tessellata* is located(Untere Lahn bei Hollerich), which will we particularly addressed with action C.5. The project area has also been nominated by the ICPR as a part of the Salmon river network within the Salmon 2020 project.

GENERAL DESCRIPTION OF THE AREA(s) TARGETED BY THE PROJECT

Please describe as precisely as possible where the project will be implemented (city, area, region, river, etc.). Please use only one form, which should include:

- *Name of the project area(s) (max 200 characters): Please indicate the name of the city, area, region, river, etc. The name indicated should be short and must be used consistently on all maps and technical forms of the proposal.*
- *Please explain (in max 10,000 characters) where the project will be implemented and justify why you have selected this particular area for your project within the geographical area covered by the targeted plan. You should explain why your choice is the most appropriate to reach the objectives of that plan.*

Name(s)/Definition of the project area(s):
Catchment area of the river Lahn in Hesse and Rhineland-Palatinate, with a geographical extension of 4,757 km² for Hesse and 993 km² for Rhineland-Palatinate.

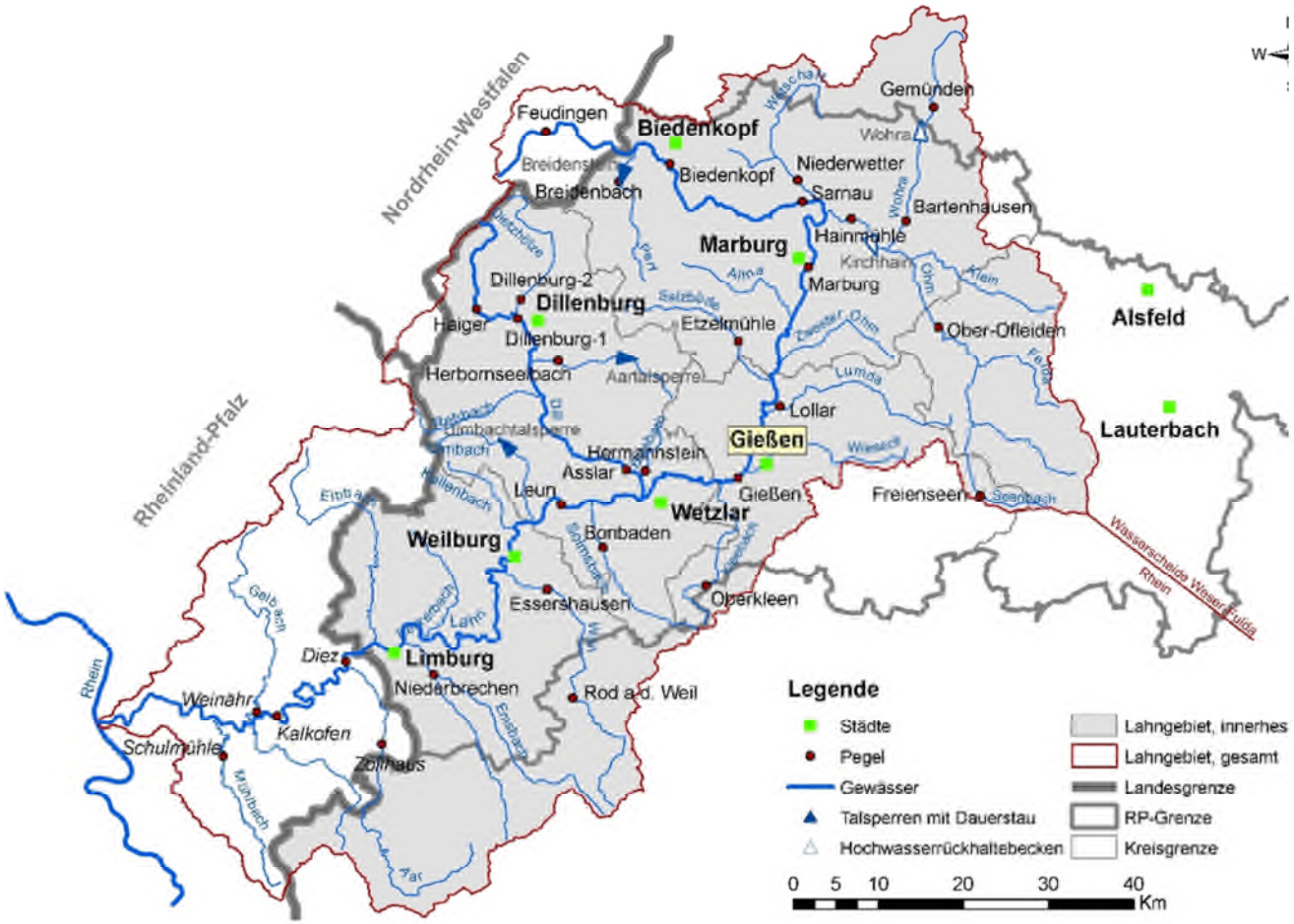
Comments:
Geographically, the LIFE-IP will focus on the course of the river Lahn with its tributaries. The river Lahn is a tributary of the river Rhine. It has a catchment area of 5,931 km^2, which is located in the German Federal States of Hesse (4,757 km^2), North Rhine-Westphalia (181 km^2) und Rhineland-Palatinate (993 km^2). On its 240 km route to its confluence with the Rhine at Lahnstein, the river Lahn flows mainly through the Central Hesse region. The lower part (148 km) has for more than 100 years been used as inland waterway for transport of goods, but in recent years the transport volume has considerably decreased.
The topography is characterized by narrow and deep valleys within the mountainous regions in the catchment area. Only the lower parts have slightly wider valleys and alluvial plains along the river.

MAPS OF THE GENERAL LOCATION OF THE PROJECT AREAS

GENERAL OVERVIEW OF LOCATION(s) IN THE COUNTRY

Quelle: Wikipedia-verändert

See kilometre scaling



GENERAL OVERVIEW OF LOCATION(s) IN THE REGION

M see kilometre scaling

DESCRIPTION OF THE STRATEGY FOR THE IMPLEMENTATION OF THE OVERALL PLAN

Currently, the ecological status and potential of the Lahn river quality assessment according to WFD demands is rated as "unsatisfactory" or "bad." Furthermore the “Report on the state/situation of floodplains” 2009 (“Auenzustandsbericht”) of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety reports a “significantly modified" to "heavily modified" status of floodplains for the major part of the Lahn River catchment area. The lower part of the Lahn watercourse, is qualified as ‘federal waterway’ – which is at the same time arated as “heavily modified water body” (HMWB). A total of 32 barrages (more than 20 with hydropower generation) prevent the free movement of fishes and other aquatic species. In practice, every measure requires a huge effort in coordination and many legal constraints exists, such as ‚water rights‘ (“Wasserrecht”), which allow only for very limited options to restore the river’s patency.

Therefore, the first step is to bring all relevant players at one table. Step two is to elaborate the basic planning concept, the ‚Lahn-Conzept‘ (Action A.1) which is necessary to pave the way for better integrating the different uses in the river section designated as inland waterway (approx. 148 km). The Lahn-Concept is the pre-condition for reconciling water and nature-related objectives according to the RBMP. It will deliver the conceptual work for achieving the targets of the RBMP in the Lahn catchment area. At project operational level, it accompanies the overall project (throughout its complete runtime) and its results will be presented at public events (‚Lahn River Conferences‘) after every project phase. The River Conferences will be used as main platform for dissemination and discussion of the results achieved until then.

In order to create favourable framework conditions for the ‚Lahn-Concept‘ and to increase its impact the following tasks will be carried out within the first project phase:

- To increase of institutional capacity in the different authorities involved by employing additional technical staff members to carry out project activities
- To launch several planning procedures at tributary rivers (preparatory actions A.2 to A.7) to assure the geographical coverage within the overall Lahn catchment area
- To install regular exchange routines with all relevant sectors at regional level
- To make sure that the interadministrative exchange between all involved water authorities runs smoothly
- To assure that all complementary financial means can be used for the LIFE-IP goals

In addition to the Lahn-Concept a basic assessment on the status of sediments in the Lahn will be carried out (A.2). It will deliver basic data on the quality and quantity of sediments, possible sources of pollution and serve as database during the preparatory work for all future construction measures in/at the river. Up to now, the chemical status and possible sources of pollution remain unclear. The sediment management concept will help to identify unknown sources of pollution and will allow cost estimations on how to solve these.

The basic approach of the LIFE-IP, as described in the summary, is to build up staff capacity in all involved beneficiary administrations in order to manage the difficult planning and coordination processes. Within project phase 1, staff will be employed and trained in order to tackle the different planning and concrete implementation measures of phase 1 (A.3 to A.7, C.1 to C.7.C).

The concept of the project includes planning and implementation of measures in all project phases.

Long term (beyond 2.5 years):
The measures proposed follow a chronological order in terms of completing or undertaking planning and approval procedures, carrying out stakeholder dialogues, organizing tender procedures for

studies or construction works and supervising technical work. Most of the measures in phases 2-4 have already been exactly defined (scope, tasks, finances). This means that the project planning is already at a relatively precise level for phases 2-4.

The main issue will be to integrate and cross-link the operative and concrete measures with the constantly ongoing concept development in action A.1 'Lahn-Concept' and A.2 'sediment concept' and to keep stakeholders and the public interested in the project and its results.

The measures proposed for communication and dissemination include e.g. the creation of hiking routes to interesting points at the river and its tributaries, combined with the programming of a GIS-based APP, which will lead tourists to particular points of interest where measures have been implemented.

One goal of the project is to develop sustainable leisure activities at and with the river. Therefore it is very important to include the political level, tourists and the local population from the very beginning. The revitalized river Lahn can provide the framework for further uptake of economic activities in sustainable tourism sector.

The long-term strategy at political level is to achieve a consensus between all involved parties on the ecological potential or good ecological status of the Lahn and its tributaries. This will be documented by signing a common declaration on the objectives defined, the 'Lahn-Declaration'. This declaration will not have legally binding character but first of all serves to harmonize goals and development processes and helps to 'sell' the new status of the Lahn within the region and to all stakeholders.

The following list shows all C-Actions beyond phase 1 in chronological order:

No.	*Description of Action*	*Responsible*	*Project phases*
C9	*Construction works for ecological improvement of sluice island Fürfurt incl. fish passage according to WFD*	*WSA*	*Phase 2-4 (Start in 2019)*
C10	*Paper mill at (Papiermühle) Diez und local mill (Ortsmühle) Flacht*	*SGD*	*Phase 2 -4*
C11	*Measures for structural diversity downstream Obernhof (110,6-110,8, li), downstream Friedrichssegen (133,0+/-), Friedrichsegener Wehr (Km 32,4-132,5), Nieverner Wehr (Km 128,5-128,6), upstream lock Scheid (Km 96,5-96,6)*	*SGD*	*Phase 2 - 4*
C12	*Implementation of concept at Gelbach river for reduction of PCDD / PCDF*	*SGD*	*Phase 2 - 4,*
C13	*Create linear patency at weir Ulmbach*	*RPGI*	*Phase 2-4*
C14	*Re-activation of the floodplains, structural diversity measures, development of alluvial forest between Atzbach&Heuchelheim*	*RPGI*	*Phase 2 -4*

The financial volume of phases 2-4 covers about 55 % of the overall project budget.

EU ADDED VALUE OF THE PROJECT AND ITS ACTIONS

Extent and quality of the contribution to the objectives of LIFE

The LIFE-IP 'Living Lahn' enables a faster and more coordinated implementation of a whole set of connected EU Directives. Its approach is strongly anchored in several goals of the 7th EU Environmental Action Programme and matches the objectives of the LIFE Multi-annual work programme as follows:

Priority Objective 1

- It contributes to restore the 15% of degraded ecosystems in the EU, to expand the concept of green infrastructure along waterways and to achieve, enhance or maintain a good status of fresh water resources, especially through Actions C.1, C.3 to C.7.C, C.9 to C.14.
- It contributes to reduce soil erosion by water as well as nutrient release to water bodies in particular ammonia and phosphorus release from inefficient fertiliser management by creating riparian stripes along rivers (CA.17, CA.22, CA.23).
- It contributes to reduce nutrient release to water bodies from urban and industrial waste water treatment by restoring different sewage systems through a contructive partnership that involves the responsible bodies (CA.18 to CA.20)

As to Priority Objective 3

- It contributes to reduce water pollution through the actions (CA.18 to CA.20).
- Through the strong partnership with the responsible authorities, "Living Lahn" fosters a coordinated implementation of WFD as well as the connected Drinking Water Directive, Bathing Water Directive and Ground Water Directive which are closely linked to WFD goals.

The LIFE-IP contributes in particular to the following goals of the Multi-annual Work Programme of the LIFE Regulation (Annex III) and sticks to its requirements:

- In line with the implementation of the WFD, the Flood Risk Directive and the priorities of the European Innovation Partnership on Water, it focuses on developing and particularly implementing actions which help the Federal level in Germany move to genuinely integrated water resource management and promoting ecosystem-based approaches.
- It addresses hydro-morphological pressures identified in the RBMP originating from land use or 'in-river use': The classification as heavily modified water body of the Lahn river, mainly in the lower stretches (148 km) is due to the high number of barrages and artificial river banks. The LIFE-IP intends to open and reshape river banks where possible and carries out several other measures to improve the hydro-morphological status of the Lahn and its tributaries.
- It heads for an integrated management of nutrients and organic pollution of human and agriculture by consulting farmers in the catchment area to sign contracts for reducing pollution.
- It also includes measures that contribute to the fulfilment of the requirements of the Urban Waste Water Treatment Directive, the Nitrates Directive, Bathing Water Directive and Groundwater Directive requirements by carrying out measures for restoration of sewage treatment plants and systems with measures on reduction of nutrient release into the Lahn and its tributaries.
- It will assess the environmental, social and economic benefits that are expected to be realised through the IP by using best-practive methodologies for monitoring the different aspects.
- It carries out a considerable number of measures to improve the conservation status of wetlands, water-bound habitats and species, afforestation of alluvial forests and re-activation of floodplains. (Actions C.6.A to C.7.C, C.9, C.14, CA.1 to CA.10).

With the LIFE-IP and its complementary actions it is expected to achieve the formulated goals of the RBMP Lahn and linear patency towards the Rhine catchment within the next two management cycles of 2016-2021 and 2022 to 2027. in accordance to the objectives of the international and national Rhine river basin organisations (see Summary, point 5) the main fields of action for the time until 2027 have been defined:

- Structure of water bodies, linear patency and hydrological balance
- Discharges of nutrients and toxic substances from point sources and diffuse pollution in surface water bodies and the groundwater
- Further anthropogenic impacts on surface water bodies and the groundwater

The LIFE-IP will help to deliver transferable results to other river basins on several topics:

- Methodology and pilot example for an integrated approach on a re-use of waterways, focussing on the water regime, consequences for groundwater level, alternative use scenarios with eco-system service studies, involvement of stakeholder groups and particular biological, ecological or water management related aspects. All these studies can be taken as examples how to deal with the re-categorization of waterways formerly used for waterborne transport.
- International and national Round Tables and expert events will help to disseminate and enrich the results for all groups and experts.

Extent and quality of the mobilisation of other funds

At present, the LIFE-IP commits to the release of a considerable amount of complementary funds from different sources, in detail:

- Funds from the State budget of Rhineland-Palatinate dedicated to the regular maintenance and restoration of rivers (budget resources RLP Support Scheme Water management "Förderrichtlinie Wasserwirtschaft", confirmed complementary funding) – Compl. Measures CA.13 to CA.24, total amount: 20.650.000 Euro
- Funds from the EAFRD (German: ELER) in Rhineland-Palatinate, within the agro-environmental scheme 'EULLE' – confirmed eligibility of measures for complementary funding) – Compl. Measures CA.17, CA.22, CA.29, total amount: 420.000 Euro
- Funds from the EAFRD (German: ELER) in Hesse with the agro-environmental scheme 'HALM' – confirmed eligibility of measures for complementary funding) – Compl. Measures CA.2 to CA.6, total amount: approx. 60.000 Euro/year
- Funds from the State budget of Hese dedicated to the implementation of the WFD and NATURA 2000 (budget resources of Land Hessen HMUKLV, confirmed eligibility of measures for complementary funding) – Compl. Measures CA.2 to CA.9, total amount: 5.152.000 Euro
- Funds from the Federal State budget of Germany dedicated to the implementation of the WFD (budget resources of WSV, confirmed eligibility of measures for complementary funding) – Compl. Measures CA.24 to CA.25, total amount: 0,5 Mio. Euro
- Funds from the Federal State budget of Germany dedicated to the implementation of the WFD, special funding scheme 'Blaues Band' (Federal Budget, confirmed eligibility of measures for complementary funding) – exact amount cannot be specified at the moment, see below and LoI.

In **total an amount of approx. 27 mio Euro** (approx. 200 % of the project volume) + funds from the federal support programm "Blaues Band" (quantification not yet possible due to ongoing programming procedure, cp. LoI "Blaues Band) of complementary funds will be unlocked to support the objectives of the LIFE-IP.

In order to give a more detailed overview on the expected level of implementation of the target RBMP as a direct consequence of the actions foreseen in the IP and in particular through the complementary actions financed by other means mobilized in parallel to the IP, the **effects and types of complementary measures** can be summarized as follows:

Restoration of linear patency

(1) For the management period of the 2nd RBMP 2015 to 2021 it is foreseen to restore the linear patency of tributary rivers to the Lahn at 11 different barrages. This includes both fish passage as detour routes of the river or more technical solutions (actions CA.13 to CA.16 and CA.21). The measures will be financed by the state budget of the Land Rhineland-Palatinate.

(2) In the Concept Note, it was foreseen to integrate the construction of a fish passage at the weir Dausenau for which the hydropower company SÜWAG is responsible. However, the company withdrew from its former willingness to contribute to the LIFE-IP due to an unclear legal situation. During the LIFE-IP cooperation with the company will be ongoing. At present, however, it is unclear when the construction of the fish passage installations can be started.

(3) The weirs at Lahnstein in Rhineland-Palatinate (lowest barrage to the confluence with the river Rhine) and Altenberg in Hesse are among the top-level-projects and will be given priority in achieving linear patency as they are at key locations in the Lahn river (according to the Priority List of the WSV) (CA.25 and CA.26).

Improvement of structural conditions and hydromorphological status of the Lahn and its tributaries

During the management period of the 2nd RBMP 2016 to 2021 several measures are foreseen to increase the structural diversity at the Lahn, e.g. at the Obere Lahn, Wetschaft, Dill and Ulmbach (CA.4 to CA.6) as well as the consulting of municipalities and other stakeholders on appropriate river management and fish protection measures (CA.2 and CA.3). Moreover, a detailed planning procedure will be carried out for implementing a reconnection and diversification of a backwater at Gisselberg (Gisselberger Spannweite, CA.11). Due to the availability of the river banks it is possible to realise a large-scale structural measure, situated within the protected landscape area “alluvial plain ‘Lahn-Ohm’”. The measure provides a stepping stone between the Natura 2000 area (SPA) ‘Lahnthal between Marburg and Gießen’ and the nature protection area ‘Unterm Wolfsberg’.

The measures will be financed by the state budget of the Land Hesse and the Land Rhineland-Palatinate.

Flood protection

In the framework of the National Flood Prevention Program the removal of dikes and restoration of retention areas, controlled flood retention and elimination of weak points are foreseen. For the catchment area of the Lahn an overall volume of 440 ha of new retention area is foreseen with a cost of approx. 70 million Euro. From this set of measures the complementary actions within the LIFE-IP will cover the retention areas along the tributary river Aar (CA.23).

Nature protection

The implementation of nature protection measures to promote the objectives of Natura 2000 will include the conservation/restoration of favorable conservation status of water-bound habitat types and Habitat Directive’s Annex II species. The following Natura 2000 sites will be touched by the LIFE-IP implementation measures: 5118-302, 5218-302, 5218-303, 5218-401, 5416-303, 5417-301, 5417-401, 5515-303.

There is a particular funding scheme for measures targeting the goals of the WFD and Natura 2000 at the same time. They can be 100% financed by the state budget of Hesse, carried out by the municipalities in charge. The following complementary actions are foreseen (CA.4 to CA.10):

- Upper Lahn and tributary river Wetschaft: a management plan has already been elaborated considering WFD, fish related aspects and Natura 2000 conservation goals for a time horizon of

approx. 5-10 years. The measures proposed in the management plan will have priority for implementation by the LIFE-IP.

- Backwater of the Lahn at Bellnhausen: planning is ongoing together with the municipality of Fronhausen with the aim of connecting the backwater, creating juvenile habitats for fishes and amphibians
- Zwester Ohm (tributary to the Lahn): there is an ongoing planning of several measures for creating linear patency, e.g. at the Hassenhäsuer Mühle and at small waterfalls in the area of Fronhausen and Ebsdorfergrund.
- Lahn (alluvial plain) between Atzbach and Gießen: the intensive use of the river by tourists requires close cooperation with the WSV in order to improve the possibilities to strengthen the local and regional tourism sector (canoeing, leisure boat trips) and to implement the management plan objectives.
- Kerkerbach: situated in the Natura 2000 area „Lahntal und seine Hänge“ (5515-303); in this area an overall assessment of invasive alien species will be carried out, as baseline information for action C.7.A.

Improvement of trophic and chemical status of the Lahn and its tributaries – Agriculture

In the lower stretches of the river Lahn, several measures are foreseen to improve the trophic and chemical status of the Lahn and its tributaries. This particulary refers to either improving the performance and technical conditions of sewage systems and sewage treatment plants (CA.18 to CA.20, CA.24) or reducing diffuse pollution from agricultural land into the tributary rivers Erbach, Dörsbach and Mühlbach (CA.17, CA.22 and partly CA.23). The measures concerning sewage treatment will be financed by the budget of the Federal State of Rhineland-Palatinate.

The measures on designation of riparian stripes and reducing nutrient and pesticide pollution from agriculture will be financed by the relevant **agro-environmental schemes (AES)** in Hesse (Hessian Funding Programme for Agricultural Environmental and Landscape Protection - HALM) and Rhineland-Palatinate (EULLE) – both programmes include LEADER. These measures will also include the promotion of ecological agriculture, the promotion of crop diversity and catch crops or the delineation of riparian stripes. They will help to buffer agricultural land use (reduce immission of fertilisers, pesticides, etc.) and to prevent soil erosion into the river. The funding schemes indicated have been available since January 1st, 2015 – the subsidy amounts to approx. Euro 760 per hectare of riparian strips. As an average value from the last budget period 2007-2013 a total of 1.6 Mio. € per year has been dedicated to AES for Hesse.

Fishery / Fish population measures

A particular focus will be given to certain fish species which are part of the "Master Plan Migratory Fish Rhine" (2009 ICPR), which constitutes a significant contribution to the implementation of the WFD in the catchment area of the Rhine. The measures are targeted to provide and structurally enrich their spawning grounds in tributary rivers as well as to stabilise their populations as they serve as nutrition for predator fish species (CA.1). In general, all fish-related measures are carried out by the owners of the fishing rights or at least with their approval. The measures will be financed by the state budget of the Land Hesse.

As PR measure the so-called ‘Lahn-window” (‘Lahn Fenster’, E.10) will be managed and maintained. The “Lahn-window” is a public watching spot, which gives insight into the submarine zones of the river. It is located in the city center of Gießen and has been constructed by the Land Hesse as public relation measure for promoting the objectives of the WFD. Within the LIFE-IP it will be used for communication and monitoring purposes.

Quality of multi-purpose mechanism, synergies and integration
The LIFE-IP 'Living Lahn' as water-IP creates a lot of synergies with other policy areas, the most outstanding (as for concrete implementation measures) is the cooperation with nature conservation. As the Lahn and in particular many of its tributaries are classified as NATURA 2000 areas, the majority of the measures to be carried out is in close vicinity or within protected areas. In Hesse and Rhineland-Palatinate combined staff teams are jointly working on WFD and Natura 2000 objectives, trying to figure out the maximum benefit and synergies between both thematic fields. This leads to well-integrated planning and implementing measures.

With regard to multilevel governance processes, the particular benefit of the LIFE-IP is that now the different vertical levels of authorities and stakeholders can be integrated systematically in planning and implementation processes. The professional exchange which will take place throughout the project will considerably increase specific and technical know-how of the staff members and will lead to improved results at all levels.

The systematic work with stakeholders will also lead to a better communication of compliance measures according to WFD annex VI Part B, e.g. improvements concerning the development of economic and tax-related instruments, ethic codices, agro-environmental schemes and consulting of farmers or improved capacity of sewage treatment plants.

Replicability and transferability
The LIFE-IP implements many measures which can be considered as best-practice within the field of river basin management. However, there are some measures which serve as testing ground for new types of fish passages, e.g. the concept for temporary lock regulation (C.1), the concept for structural improvements in regulated sections of the waterway (C.6.C), the construction of fish passages ('Raue Rampe') in action C.9 or the management of turbines for eels (C.7.C). These different measures are based on existing scientific data and studies, and will be tested under real conditions and within specific situations in the Lahn catchment area.

More than 2,500 kilometres of waterways in different river basins in Germany face similar problems. Thus, the LIFE-IP can serve as source of information and piloting. By combining the expert conferences and workshops with meetings of the German Working Group on water issues (Bund-/Länder Arbeitsgemeinschaft Wasser - LAWA) of the Federal States and the Federal Government represented by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and the Federal Ministry of Transport and Digital Infrastructure, transfer and exchange of results is ensured.

The LIFE-IP will deliver an integrative management strategy for the revitalization of the waterway Lahn – but it will also contribute to get experience how to deal with trained rivers in general and at European level. As already explained above, rivers are facing multiple usages and have been subject to immense pressure over the last 150 years throughout Europe, with the result that few of the major lowland rivers are now in an entirely natural state or even in a bad ecological status. Both sustainable transport policy (as defined by the NAIADES programme of the EU and the PLATINA project) and European biodiversity policy have to be considered when defining new scenarios for the Lahn and other European rivers. The LIFE-IP will consider the 'Guidance document on Inland waterway transport and Natura 2000' of the EU-COM, and will help to develop further alternative scenarios for river management, which can then be applied at European wide level.

Transnational, green procurement, uptake of research results:
The LIFE-IP works at interregional level within the German Federal system of Länder and includes the two Länder Hesse and Rhineland-Palatinate. The link to the EU-wide and international community will be part of the project, mainly for dissemination activities.

The beneficiaries of the LIFE-IP will publish the main project results in peer-reviewed scientific and public journals, thus making sure that the scientific uptake of results can take place. The existing networks at national level will help to initiate other and similar projects and activities in Germany and Europe.

Topics of EU wide interest, like invasive alien species along rivers (see http://www.europe-aliens.org/) or water flow regime regulation in weir-regulated rivers, sediment management will be given priority at the different expert workshops.

All project beneficiaries will be informed on the green procurement initiative of the EU. The Ministries of Environment in Hesse and Rhineland-Palatinate already follow internal 'green procurement rules' which cover different aspects as specified below:

In RLP the maximum CO2 discharge is limited for vehicles used for business trips and services provided to the ministry. Moreover, there is an initiative "Rhineland-Palatinate eats better" ("RLP isst besser") which ensures purchase of food and catering services from regional sources.

The procurement of goods and services for the Land Hesse is organized by a regulation (Erlass vom 12.12.2005), stating that all administrations and sub-ordinated bodies are to consider aspects of sustainability and social standards for all procurements. For the sustainable procurement in Hesse, guidance documents have been elaborated by the Working Group „Hesse – pioneer for sustainable and fair procurement" for the following groups of products and services:

1. office products
2. office equipment for printing
3. office furniture
4. computers and screens
5. vehicles
6. cleaning services
7. textile products

More information can be found at: www.hessen-nachhaltig.de

BEST PRACTICE / INNOVATION / DEMONSTRATION CHARACTER OF THE PROJECT

BEST PRACTICE:

The present LIFE-IP carries out most of the measures as “best-practice actions”, in particular with regards to all concrete implementation measures. The specific features of the best-practice aspects of the respective measures can be found in the actions description. It will be ensured that the latest state-of-the-art technologies, equipment and approaches will be applied, options to improve those will be documented and feed into several expert rounds, e.g. as part of the Lahn concept (A1), the regional, national and international roundtables (F2, E7, E2), international expert workshops (E8). The following list of best practices shows selected highlights:

- To create linear patency at the different locks, weirs and barrages and to construct fish passages according to WFD. In some parts, a new approach for “fish sluices” will be tested and evaluated, compared to existing fish passage systems. (cp. Actions C1, C3, C7C, C13)
- Furthermore all approaches will be continuously monitored with regards to overall conditions
- To connect backwaters and improve structural diversity and to create additional retention areas (cp. e.g. Actions C4, C5, C6A., C6B, C6C). Here, especially the **integrated planning and implementation approach** taking into account the interests and views of a variety of different must be highlighted. In more traditional approaches, these projects were dealt with from a purly sectoral approach following nature protection requirements. The present approach involves different stakeholder groups sectors and different administrative levels (cp. A1, F2). By including all these stakeholders already at an early stage in the planning process, the plan approval procedures can be significantly accelerated and the quality of solutions identified as well as their sustainability will benefit from the input from all the stakeholders.
- To create **socio-economic benefits** by developing sustainable tourism. Here, especially the combination of nature tourism and the parallel monitoring according to the socioeconomic study on ESS carried out is expected to provide best practice results (cp. D1).

DEMONSTRATION:

The integrative approach, as implemented by Action A1 Lahn Concept (complemented by E2, E6, E7, E8, F2) will be the guiding principle for all project operations. By realizing close cooperation and joint participative planning processes by different administrative levels (municipalities, “Länder” and the federal level), especially action A1 demonstrates a clear multilevel governance approach for the field water management. It will establish close communication channels, identify success factors for inter-administrative dialogue and cooperation, which all contribute to speeding up planning and implementation processes for WFD related measures.

The LIFE-IP thus has demonstration character in the way how the participative approach is performed, which is also a central prerequisite for the acquisition of additional funds. As explained in the different actions (A1, A2, E2, E6 - E9), as well as in the integrated summary description, the following aspects are significantly relevant here:

- The **re-categorization of waterways** and the pressure to realise the **implementation programme of the RBMP according to the WFD**, lead also an increased requirement to coordinate and “harmonise” efforts related to both targets/framework conditions. Under “traditional” conditions, measures relating to both aspects are normally being prepared and implemented separately. Due to the integrated approach of the LIFE-IP (cp. A1, E6, F2), it is now possible to “reconcile” both aims and to demonstrate a profoundly integrative approach, which links different administrative levels as well as a variety of stakeholders groups already at an early stage in order to to create links and synergies between both strategies:

- **Time, staff, capacity**: It will be possible to implement WFD objectives within the timeframe provided and to acquire the necessary financial and staff capacity.
- **Organisational synergies**: Stakeholders that would normally be in the area of responsiblitiy of both strategies are now able to merge their activities to a **comprehensive strategy**. Aspects can be discussed taking into consideration both viewpoints in a more coordinated way.
- **Financial Synergies**: Both strategies require significant investments. If planned and implemented separately (as usual), contradictory effects might occur, e.g. a speedy, but expensive deconstruction of locks that does not take into account rehabilitation requirements. If both investments are coordinated, a significant amount of necessary deconstruction works can be directed into these measures. This requires a close coordination of preparation, contracting and implementation steps. Thus, funds will be mobilized in order to strengthen the responsible administrations and to bring the WFD a big step forward.
- **Relevance for other German and European rivers**: Assuming that a considerable share of European rivers face similar problems, more than 30.000 km of waterways of the longest European rivers and their tributaries could benefit from the current project.

b) Furthermore, a multitude of comparatively **local demonstration projects** – focusing on issues that are shared by many rivers in Europe - will take place, such as:

- A definition of models for water regime and hydrological balance,
- A provision of concepts for development of alternative and sustainable exploitation of the river for leisure activities,
- A development of species-related conservation measures with demonstration character and a sediment cadastre with added value for other river basins in terms of methodology and applications.

Through the combination of these local activities, it will be possible to create synergies for several measures and the involvement of stakeholder groups due to the umbrella effect of the LIFE-IP. As all stakeholders are committed to regular round tables, **capacity building for local and regional level** or expert events also mutual understanding of the overall context as well as a **joint identity as a common decision-making body** will develop. Many colleagues that normally do not work together on a regular basis will now join in a newly created platform. This creates mutual trust and more crative approaches. This setting will be the most important enabler of new and integrated ways of organising necessary environmental strategies.

PILOT (INNOVATION):

The set of activities around the organisational and financial merging between the re-categorization of waterways and the implementation the measure programme of the RBMP according to the WFD does – besides demonstration asepcts - also include lots of pilot innovations. This especially concerns participatory and contractual aspects, but also the inclusion of new aspects and levels into the existing structures for multilevel governance in this field. The following list highlights a few examples:

- Among the standing structures for exchange, agreements and discussion ranges the LAWA. The LAWA, founded in 1956, is the German Working Group on water issues of the Federal States and the Federal Government represented by the Federal Environment Ministry. Within the lifetime of the IP project, the LAWA will be enriched by additional stakeholders and will be able to enlarge its portfolio of additional topics through a concrete, integrated strategy. Through this, new and integrated approaches will be anchored in one of the main decision-making platforms in Germany.
- The vertical multilevel governance in this specific platform created by the project comprises federal level as well as the levels of federal states, counties, cities and towns, associations and private actors. For the first time, a very long-term and concrete direct cooperation platform between federal level and local level has been established for such concrete issues. This model could be

transferred within Germany, but also in the wider European Area.

- The combination of these two measures will also lead to testing and pilot innovations of new approaches for contracting between different institutions and strategies. While joint planning and implementation is part of the demonstration activities, the joint contracting between these two strategies/institutions is a novelty.

Furthermore, concrete technological and methodological innovations will be piloted in this project (see respective action for more details), such as

- Turbine management for downstream eel migration with intensive monitoring on success, number and physical intactness of the single fish specimen
- Temporary management of locks for fish migration in an interdisciplinary approach between Waterways and Shipping Administrations and environmental authorities, with intensive discussion on potential water flow (during night hours) and management requirements to realize the measure.
- Mitigation of invasive alien species along rivers and communication of these measures to the population

EFFORTS FOR REDUCING THE PROJECT'S "CARBON FOOTPRINT"

All administrative authorities in Germany, especially the environmental authorities are bound to EMAS guidelines, therefore a solid basis is given for achieving a low-carbon implementation approach for the LIFE-IP. In addition, the overall project operations will be based on the following guiding principles in order to minimise the use of fossil fuels:

- **Travel**: With regards to travel activities, meetings will be held at “easy to reach” meeting locations that are located close to public transport infrastructure. Regular joint meetings will be prepared by conference phone calls in order to make them more effective. Furthermore, meetings serving different purposes and actions will – if possible – be combined, in order to minimise travel distances and frequency.
- **Publications**: Wherever possible and allowed, recycled paper will be used, in compliance with the EMAS guidelines implemented by the participating authorities.
- Where appropriate, **digital information** will be used instead of print media. However, due to target group orientation, written information in print will remain relevant. Consequently, it will be taken care that recycled paper and ecologic principles will be pursued during the production phase.
- With regards to the **peer group management**, meetings will be held following a "low carbon" principle established in German authorities: Circulation of information material as pdf previous to the meetings instead of comprehensive printouts, moderated and focused discussion, no "one-way" material during catering.

STAKEHOLDERS INVOLVED IN THE PROJECT

As already described in the 'Summary' of the project outline the situation of the Lahn River is very complex with many different legal obligations and interests at the river. Therefore, cooperation of different policy levels and stakeholder groups is needed. The requirements and types of cooperation or integration into the LIFE-IP will be described hereafter:

As Project Coordinating Beneficiary the Hessian Ministry of the Environment, Climate Protection, Agriculture and Consumer Protection will coordinate and steer the LIFE-IP together with the associated beneficiaries, the Ministry of the Environment, Agriculture, Nutrition, Viniculture and Forestry of Rhineland-Palatinate, the Regional Authority Rhineland-Palatinate (SGD), the WSA – Waterways and Shipping Office Koblenz", the German Federal Institute of Hydrology (BfG) and the Regional Authority in Hesse (RPGI).

Due to the thematic variety of topics it is necessary to involve practically all expert groups dealing with water management or water related issues. Moreover, the following partners will be closely involved in the project – either as target group, experts, implementation partner on national or regional level or supporting partner for dissemination of project results:

On National Level
Federal Ministry of Transport and Digital Infrastructure (BMVI)
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Federal Agency for Nature Conservation (BfN)
Federal Waterways Engineering and Research Institute (BAW)

On Regional Level
Counties (dt.: Landkreise) Siegen-Wittgenstein, Marburg-Biedenkopf, Gießen, Lahn-Dill, Limburg-Weilburg, Rhein-Lahn-Kreis
Municipalities Bad Lasphee, Biedenkopf, Marburg, Gießen, Wetzlar, Limburg, Diez, Bad Ems, Lahnstein, VG Nastätten, Härtlingen, Nassau etc.

The regional municipal bodies are responsible for maintenance of small tributaries and other water related issues. They are needed for on site implementation, communication with landowners, development and support of sustainable tourism offers; they are target groups for awareness raising, e.g. by addressing the different existing associations, leisure groups, etc., involvement in maintenance works with municipal staff.

Stakeholder groups potentially important for the implementation process
University of Kassel (developers of flood protection concept for the Hessian Lahn, INTERREG IVB)
Hessian Fishermen Association (Verband Hessischer Fischer), local fishermen associations (Hegegemeinschaften)
Hessian Farmers Association (Hessischer Bauenverband)
Biological Station Siegen-Wittgenstein (NRW)
Hydropower companies (Süwag, AG Hessische Wasserkraftwerke, etc.)
Water&Maintenance Associations (Wasserverbände Lahn-Ohm, Oberes Lahntal/Lahngebiet)
Hessian Sports Association (Landessportbund Hessen)
Tourism representatives (e.g. Lahntal Tourismus Verband e. V.)
Hydropower Associations
Nature conservation NGOs, e.g. NABU Blaues Band, NABU Hessen, NABU Institute for Ecology of rivers and alluvial plains (Institut für Fluss- und Auenökologie), Rathenow, Brandenburg, BUND: Lahnauenprojekt Biedenkopf, Lahnprojekt Marburg, IG Lahn

The numerous NGOs and interest groups are important multipliers for dissemination of results, for organizing voluntary implementation activities. They will bring in valuable regional and local knowledge on the river and its history. The interest groups in the field of agriculture will be important counterparts for discussing the options on availabiliy of land for water retention or creating structural diversity.

The scientific players are needed to accompany the project with student work or actions as well as with active feedback on all the measures carried out (during routine Round Tables or informally).

EXPECTED CONSTRAINTS AND RISKS RELATED TO THE PROJECT IMPLEMENTATION AND MITIGATION STRATEGY

LIFE-IP

The major possible constraints for the success of the LIFE-IP can be formulated as follows:

- The project requires well qualified staff to deal with complex questions within the project. Therefore delays in employing expert staff at the different partner institutions can lead to overall project delays.
- The stakeholder dialogue reveals unforeseen obstacles during the planning phase of single implementation measures, which may lead to delays, too.
- Certain measures require administrative approval procedures, which may be very expensive and time consuming due to difficult agreement processes.
- Long-term contracts for water rights may prevent the implementation of important measures (or are expensive to withdraw).
- Funding sources from federal or federal state level are not available as foreseen, leading to delayed implementation of on-site measures.
- The stakeholder dialogue does not convince all of the interest groups.
- The timeline of 10 years may not be sufficient to deal with the complex situations at single stretches of the Lahn River.

Complementary actions

- The shortage of agricultural territories increases, e.g. due to higher demand of energy from biomass and leads to non-availability of areas for water related purposes.
- Tourism and agriculture may not be willing to accept restrictions of use at/along the river.
- The acceptance of agro-environmental schemes is low due to more attractive options of use (alternative solutions have to be sought, e.g. PIK – "*produktionsintegrierte Kompensationsmaßnahmen*" – production integrated compensation measures).
- Restrictions to access protected areas may lead to non-acceptance of the measures, e.g. by the high number of canoeing tourists.

Mitigation strategy

- Project partners are already **communicating the project idea** and substantial interest in participation has been expressed a) by the expert community b) by local and regional stakeholder groups c) by different administrative levels. This will contribute to mitigating
    - the risk of not finding well qualified staff on time
    - the risk of not finding joint solutions with different stakeholder groups

Furthermore action A1 also includes the possibility to set up **mediation processes** between different stakeholders, in order to enable the agreement on joint solutions etc.

- Actions have been selected taking into account the most important (and known) **framework conditions** (e.g. existing water rights, land purchase etc.). Thus, it can be expected that most plan approval procedures can be implemented on time. This will also be accelerated by the overall participative planning process, as described (A1, F2 etc.)
- Most relevant **funding sources** have been (at least potentially) confirmed by the relevant authorities. Also, most project partners administrate their ownfunding schemes, so it can be expected that most of the funds listed and expected are available.
- The overall **integrative project approach** will secure that there is sufficient interest in finding really joint solutions for any problems which may arise.

CONTINUATION / VALORISATION AND LONG TERM SUSTAINIBILITY AFTER THE END OF THE PROJECT

(max. 5.000 characters each)

- How will you ensure the long term implementation of the plan and beyond?

One of the main objectives of the project is to build up **sustainable** modes, structures and forums for multilevel governance and participatory cooperation, when preparing, planning and implementing WFD-implementation measures. These structures and “forums” of cooperation will continue also after funding duration and contribute to the long-term implementation of the WFD along the Lahn River.

Furthermore encompassing dissemination/transfer (E-Actions) will spread know-how acquired during the project to further German and European regions. Good and best practices from the project will e.g. be systematically transferred to other regions, via several capacity building measures, joint workshops and conferences, guided study tours. These following actions are especially relevant here:

- E2 international roundtable
- E6 capacity building programme
- E7 national roundtable
- E3 ongoing press and public relations
- E7 Public project conferences and expert workshops

Thus the project will build a sound foundation in order to ensure that the different project approaches and key issues, such as:

- Multilevel governance
- Participatory planning processes
- How to deal with recategorization of waterways and how to utilise this as an opportunity for WFD implementation
- Good and best practices for WFD implementation
- Information exchange and cooperation with key stakeholder groups, e.g. agriculture and hydropower producers

will be continued also after funding duration and will have an impact not only on the Lahn River but also on WFD implementation in other German and European regions.

With regard to the designation of river stretches of the river Lahn that are currently designated as ‚heavily modified water bodies‘ the following information can be given:
The definition of the highest and GEP presented in BP 2009-2015 was - in technical matters - a particular difficulty. In the 2009-2015 used in RBMP approach to define the good / highest ecological potential to reach for the highest biological values the MEP initially only had been estimated (Technical Report of the CIS activity "WFD and hydromorphological water pollution", November 2006).
Meanwhile, an evaluation process to determine their environmental potential has been developed based on the benthic invertebrate fauna and fish from the LAWA - more details can be found in the conceptual framework VI LAWA (2012) and in the "Guide for the evaluation and planning treatment of heavily modified waters and artificial waters ". In the second WFD management cycle water bodies had been assessed on the basis of groups of cases that are derived from water-type groups and specified uses.

Possibilities for the application of better environmental options and for the relocation of existing uses were taken into account adequately. In case the necessary measures proved unworkable, the water body has been designated as heavily modified.
More detailed information can be found in the relevant designation sheets (http://www.flussgebiete.hessen.de // Information Background information from 2015 to 2021).

The formal designation and naming of mitigation measures on the definition of good ecological potential was carried out for the HMWB based on this uniform designation sheets (Appendix 2-10), corresponding to the requirements of the HMWB-Guidance (CIS Guidance 2.2, 2002).

A reconsideration of the designation as HMWB will be held during the preparation of the third RBMP. It will be taken into account, to what extent changes of usages at the river Lahn such as heavy navigation will have an impact on the HMWB delineation process.

- Which actions will have to be carried out or continued after the end of the project?

- A1 – the Lahn concept – will put a particular focus on securing sustainability of the new forms of cooperation, complemented by regional, national and international outreach (F2, E2, E6). It is intended to continue the established forum and modes of interadministrative dialogue and stakeholder cooperation also beyond funding duration
- E2, E6, E7, E8, F2 – all of these actions are complementary to the Lahn concept, “enlarging” the reach of the project to
    - Further EU countries and LIFE IPs (E2)
    - Further stakeholders from other German or European water administrations (E6) as well as experts from research and universities (E8)
    - Further regional and federal ministries and administrative bodies (E7)
    - Local stakeholders crucial to the successful implementation of WFD-related measures
    - ⇨ These different forms of cooperation and dialogue will therefore also be continued after the project duration.

  As to the concrete WFD-implementation measures (mostly A, C-actions), their success and efficiency will be continuously monitored (D-Actions). On this basis it can only be decided at a later stage of the project, which approaches have proved successful and will be continued also after the end of LIFE-funding.

- How will this be achieved? What resources will be necessary to carry out these actions and how will those capacities be ensured?

As mentioned above, the establishment of new modes and forums of cooperation between different administration and different stakeholder groups is a crucial objective of the LIFE-IP. For implementing the mentioned measures also beyond funding duration, the following resources are necessary

- Staff costs at ministries or other regional bodies to prepare, coordinate meetings and joint planning processes
- Travel costs for participation in joint meetings, roundtables etc
- Possibly: costs for further joint conferences, expert workshops etc.

These new forms of cooperation will lead to **speeding up** planning processes and also implementation of WFD-related measures, which is in the interest of most administrations. Thus, we believe, that there is an intrinsic motivation by most stakeholders involved to continue with related activities and to also bring up the necessary resources to make this possible.

- Will the staff recruited/trained during the project continue to work on the implementation of the plan?

Staff recruited during the project: Staff recruited during the project will – if possible – have the possibility to move to other open posts at the respective administration. If possible, it is intended to keep the new staff – and their acquired know-how and networks – within the organisation.

Staff trained: The project includes several capacity building measures for stakeholders from other German and/or European regions (cp. e.g. E2, E6). These measures intend to exchange and transfer know-how in order to spread successful and efficient approaches to other regions. Thus, it can be expected that the participants in the several capacity building measures (international roundtable, joint workshops, capacity building "cruises", guided study tours, guideline development) will continue to work on the implementation of the plan, using also the input and know-how acquired during those capacity building measures.

- How, where and by whom will the equipment acquired be used after the end of the project? (if relevant)

The drone purchased by RPGI and used for monitoring purposes throughout the project will stay at the RPGI for further use in the same thematic field. The depreciation value of this type of equipment will be zero after 10 years of project duration.

Also, the screen purchased for "Lahn window" will also continue to be used for improving citizens' awareness on ecological interrelations.

The technical equipment purchased for Lahn concept meetings etc. will also continue to be used for improving meetings efficiency.

- To what extent will the results and lessons of the project be actively disseminated after the end of the project to those persons and/or organisations that could best make use of them (please identify these persons/organisations)?

  As mentioned above, the project implements a range of capacity building, dissemination and knowledge transfer measures, in order to ensure sustainable uptake and transfer of project results a) after the end of funding b) by further stakeholders from other European or German regions. Since all these measures intend to set up sustainable contacts and networks, it can be expected that the cooperation with those other stakeholders and the know-how transfer will of course continue also after the end of LIFE funding.

  The following lists some of the most important target groups and "dissemination forums":
  - The water authorities from other German regions, via targeted dissemination of the final publication and information of expert rounds via the BfG, BAW, BfN or other multiplier organisations in thematically close fields, both at Federal and Länder level.
  - Expert or institutional networks of similar water management authorities in Germany and in Europe. For Germany it will be the **LAWA** (http://www.lawa.de/) which is the standing cooperation platform between the national level and the representatives of the federal states with regard to all water related issues.
  - For Europe or at international level, different working groups on water issues exist which will be duly informed via the project conferences and project publications.
  - In order to ensure an EU wide applicability, tailor-made information material will be developed for each European representation of stakeholder groups, both in print and in a

digital format (action E.3). Information and results will be offered to the following stakeholder groups: national and EU level associations of cities and regions (RGRE, Deutscher Städtetag, CEMR, CoR, ENCORE), farmers associations on national and EU level, nature protection authorities and NGOs on national and EU level and other water management authorities.

- Special emphasis will be given to pressures from agriculture, since these are crucial factors to achieve the environmental objectives set in the WFD. This will be applied by the implementation of buffer stripes along the river Lahn and its tributaries in order to reduce diffuse pollutions and to allow more natural bank vegetation.

At some points, stakeholders and target groups do overlap: it is foreseen to identify multipliers for every stakeholder group and then actively inform the multiplier institutions/organizations.