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**Task1: NWRM Case-Study Factsheet**

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| **Status box**  **Version**: 1.4 **Date**: 15/04/14  **Authors:** Maggie Kossida (IACO) + Contributors  **Background**:  The Case-Study Factsheets will be filled in with information collated on applications of “particular interest”. The CS Factsheets will be an output product able to reflect on a coherent storyline and are mostly targeting, although not being limited to, design practitioners. They are linked of course to the DB via specific queries that extract the information and present it as illustrated in the hereunder document. They contain descriptive info of the specific application (that can of course showcase the implementation of an individual NWRM or o a bundle of them), technical info on the main design parameters and monitoring requirements (to allow the practitioner identify similarities and/or discrepancies as compared to his “candidate” site/environment), quantifiable indicators (especially with regards to the biophysical impacts and economic information, along with possible performance metrics) to help them grasp the range of benefits and costs and the overall performance/effectiveness, lessons learned to highlight the main risks, other outcomes, enabling factors and preconditions.  In the current draft the following elements have been considered:  - Analysis of the design practitioners’ user needs  - Feedback on the NWRM DB (WG PoM, DG ENV, EEA, NWRM Consortium)  - Existing factsheets of similar purpose/target  **Main contributions**: (*name of the contributor / commenter*)  - Nick Jarrit (AMEC)  - Martyn Futter (SLU)  - Verena Mattheiss, Pierre Strosser (ACTEON)  - Benoit Fribourg-Blanc, Sonia Siauve (OIEau)  - Alistair McVittie (SRUC)  - Gonzalo Delacamara (IMDEA)  - George Karavokiros, Ayis Iacovides (IACO) |

**NWRM Case-Study Factsheet**

**Note**:

* Fill in the grey cells with the requested information

## Photo Gallery

Pleas provide below 2-3 photos form the case study. Explanatory legend and source are mandatory.

## Basic information

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| --- | --- | --- | --- | --- | --- | --- |
| Application ID  *(Country\_Numeric, e.g.: Greece\_01)* |  | | | | | |
| Application Name  *(provide a short name)* |  | | | | | |
| Application Location | Country:  *(select from list in Annex 1)* |  | | | Country 2:  *In case of transboundary applications* |  |
| NUTS2 Code *(select from list in Annex 1)* | | | |  | |
| River Basin District Code *(select from list in Annex 1)* | | | |  | |
| WFD Water Body Code *(select from list in Annex 1)* | | | | *For the moment we have only the WFD GWsB in the Annex 1, since the SWBs is a huge list. You can leave out this matching for the moment, just provide the correct coordinates below and we can do all matchings afterwards.* | |
| Description  *(free text, short description of the location)* | | | |  | |
| Application Site Coordinates  *(in ETRS89 or WGS84 the coordinate system)* | Latitude:  *- ETRS89 or WGS84? Specify:* | | | Longitude:  *- ETRS89 or WGS84? Specify:* | | |
| Target Sector(s)  *Possibility to select more than 1 sectors (primary vs. secondary*) | Primary: | | Choose an item. | | | |
| Secondary: | | Choose an item. | | | |
| Implemented NWRM(s)  *Possibility to select more than 1 NWRM. Link to NWRM catalogue and NWRM Factsheets, Select from list in Annex 1.* | Measure #1: | |  | | | |
| Measure #2: | |  | | | |
| Measure #3: | |  | | | |
| Measure #4: | |  | | | |
| Application short description | Text | | | | | |

## Policy Context and Design Targets

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Brief description of the problem to be tackled | *Briefly describe the problem that needs to be tackled in this application* | | | | | | |
| What were the primary & secondary targets when designing this application?  *Select from the drop-down menu.*  *The possibility for more than one target is provided. Additional info can be given in the “remark” field to address e.g. other targets not included in the list, and give some details* | Primary target #1: | | | Choose an item. | | | |
| Primary target #2: | | | Choose an item. | | | |
| Secondary target #1: | | | Choose an item. | | | |
| Secondary target #2: | | | Choose an item. | | | |
| Remarks | | |  | | | |
| Which specific types of pressures did you aim at mitigating?  *Select the relevant Directive (EU, non-EU) from the drop-down menu and type-in the related pressures. Different types of pressures as identified by EU-Directives (WFD, FD, etc.) are listed in the Annex 2* | Pressure #1: | Choose an item. | | | | *Type in the relevant pressure from the EU-Directives’ lists in Annex 2* | |
| Pressure #2: | Choose an item. | | | | *Type in the relevant pressure from the EU-Directives’ lists in Annex 2* | |
| Pressure #3: | Choose an item. | | | | *Type in the relevant pressure from the Directives’ lists in Annex 2* | |
| Pressure #4: | Choose an item. | | | | *Type in the relevant pressure from the Directives’ lists in Annex 2* | |
| Remarks |  | | | | | |
| Which specific types of adverse impacts did you aim at mitigating?  *Select the relevant Directive (EU, non-EU) from the drop-down menu and type-in the related impacts. Different types of adverse impacts as identified by EU-Directives (WFD, FD, etc.) are listed in the Annex 2* | Impact #1: | Choose an item. | | | *Type in the relevant impact from the Directives’ lists in Annex 2* | | |
| Impact #2: | Choose an item. | | | *Type in the relevant impact from the Directives’ lists in Annex 2* | | |
| Impact #3: | Choose an item. | | | *Type in the relevant impact from the Directives’ lists in Annex 2* | | |
| Impact #4: | Choose an item. | | | *Type in the relevant impact from the Directives’ lists in Annex 2* | | |
| Remarks |  | | | | | |
| Which EU requirements and EU Directives were aimed at being addressed?  *Select from the drop-down menu the different types of requirements as identified by EU-Directives (WFD, FD, etc.), and provide additional specification.* | Requirement #1: | | Choose an item. | | | | *Specify* |
| Requirement #2: | | Choose an item. | | | | *Specify* |
| Requirement #3: | | Choose an item. | | | | *Specify* |
| Requirement #4: | | Choose an item. | | | | *Specify* |
| Remarks | | | | | | |
| Which national and/or regional policy challenges and/or requirements aimed to be addressed? | Text | | | | | | |

## Site Characteristics

|  |  |  |
| --- | --- | --- |
| Dominant Land Use type(s)  *Select from the drop-down menu with the CORINE LU types and codes. Space of additional comments/remarks is provided* | Dominant land use | *Type in the relevant Code Level3* |
| Secondary land use | *Type in the relevant Code Level3* |
| Other important land use | *Type in the relevant Code Level3* |
| Remarks | |
| Climate zone  *Select from the drop-down menu* | Choose an item. | |
| Soil type  *Select from the list with the FAO classes in Annex 3* | *Type in the relevant soil type (FAO class) from the list in Annex 3* | |
| Average Slope  *Select from the drop-down menu* | Choose an item. | |
| Mean Annual Rainfall  *Select from the drop-down menu. Values are in mm,* | Choose an item. | |
| Mean Annual Runoff  *Select from the drop-down menu. Values are in mm.* | Choose an item. | |
| Average Runoff coefficient (or % imperviousness on site)  *Select from the drop-down menu. Space of additional comments/remarks is provided* | Choose an item. | Choose an item. |
| Remarks | |
| Characterization of water quality status (prior to the implementation of the NWRMs)  *Please link to the WFD water quality parameters (nutrients N,P; organic pollution; chemical pollution, Cu, Zn; saline pollution; TSS; acidification, elevated temperatures; E.coli, Fecal coliforms, etc.)* | Text  *Please link to the WFD water quality parameters (nutrients N,P; organic pollution; chemical pollution, Cu, Zn; saline pollution; TSS; acidification, elevated temperatures; E.coli, Fecal coliforms, etc.)* | |
| Comment on any specific site characteristic that influences the effectiveness of the applied NWRM(s) in a positive or negative way | Text  *Positive way:* | |
| Text  *Negative way:* | |

## Design & Implementation Parameters

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Project scale  *Select from the drop-down menu the relevant scale and specify.* | Choose an item. | | | | *Specify* |
| Time frame  *NWRM(s) Installation date and lifespan* | Date of installation/construction (MM.YYYY) | | | | *Specify* |
| Expected average lifespan (life expectancy) of the application in years | | | | *Specify* |
| Responsible authority and other stakeholders involved  *List of all + Descriptive Text of roles, responsibilities, etc.* | *Name of responsible authority/ stakeholder* | | | *Role, responsibilities* | |
| 1. | | |  | |
| 2. | | |  | |
| 3. | | |  | |
| 4. | | |  | |
| 5. | | |  | |
| The application was initiated and financed by | Text | | | | |
| What were specific principles that were followed in the design of this application?  *Examples provided: water-sensitivity, aesthetic benefit, functionality, usability, adaptability, integrative planning, integration of demands, acceptable costs, impact on public perception & acceptability, etc.* | Text | | | | |
| Area (ha) | Number of hectares treated by the NWRM(s).  *e.g. It could be the upstream drainage area in case of retention ponds* | | *Number of ha* | | |
| Text to specify  *(caution to differentiate between treated or target area vs. the application area occupied by the NWRM). In some cases treated area may not have a meaning (e.g. green walls). In other cases you may have a measure applied in an upstream forest but with the purpose of mitigate an impact in a downstream area* | | *Specify* | | |
| Design capacity  *Briefly describe the design capacity(ies) of the implemented NWRM(s), e.g. maximum volume of runoff water that can be retained per time step, maximum pollutant removal capacity in mg/l, etc.* | Text | | | | |
| Reference to existing engineering standards, guidelines and manuals that have been used during the design phase  *References: active links to specific documents or website(s), and if not available online, provided them on the collaborate platform in the library section and URL here* | *Reference* | | *URL* | | |
| 1. |  |  | | |
| 2. |  |  | | |
| 3. |  |  | | |
| 4. |  |  | | |
| 5. |  |  | | |
| Main factors and/or constraints that influenced the selection and design of the NWRM(s) in this application?  *List and describe specific factors that either guided or constrained the selection and the design (e.g. land use constraints, cooperation issues with land owners, specific legislation, existing funding for specific priorities, private investments, legal obligations - EU requirements, etc.)* | Text | | | | |

## Biophysical Impacts

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| --- | --- | --- | --- |
| **Impact category** (short name)  Select from the **drop-down menu** below: | **Impact description** (Text, approx. 200 words) | **Impact quantification** (specifying units) | |
| Parameter value; units  *and/or* | % change in parameter value as compared to the state prior to the implementation of the NWRM(s) |
| Runoff attenuation / control | *Describe the impact on runoff reduction and/or control* |  |  |
| Peak flow rate reduction | *Describe the impact on the peak flow rate* |  |  |
| Impact on groundwater | *Describe the impact on the groundwater, e.g. increased groundwater level, decreased depth to groundwater, increased infiltration/percolation and recharge* |  |  |
| Impact on soil moisture and soil storage capacity | *Describe the impact on the soil moisture and soil retention capacity* |  |  |
| Restoring hydraulic connection | *Describe the impact on river connectivity, surface-groundwater body interaction, etc.* |  |  |
| Water quality Improvements | *Has the NWRM impacted the overall water quality? In which way? Please provide some explanatory text. Provide details on specific pollutants (N, P, TSS, Cu, Zn, E.coli, Fecal coliforms, etc.)* |  |  |
| WFD Ecological Status and objectives | *Describe any impacts related to the improvement of the WFD ecological status, and/or environmental (the biophysical related ones) objectives* |  |  |
| Reducing flood risks (Floods Directive) | *Describe any impacts related to the flood risk reduction and the objectives (the biophysical related ones) of the Floods Directive* |  |  |
| Mitigation of other biophysical impacts in relation to other EU Directives (e.g. Habitats, UWWT, etc.) | *Describe any other biophysical impacts related to pressures and objectives (the biophysical related ones) of other EU Directives, e.g. Habitats Directive, UWWT Directive, etc.* |  |  |
| Soil Quality Improvements | *Has the NWRM impacted the overall soil quality? In which way? Please provide some explanatory text. Provide details on specific pollutants (N, P, soil carbon/organic matter, physical properties-bulk density, etc.)* |  |  |
| Other | *Please described any other biophysical impacts not captured in the predefined list* |  |  |

## Socio-Economic Information

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| What are the benefits and co-benefits of NWRMs in this application?  *Refer to the direct and ancillary benefits (including societal impacts). These are positive outcomes (or welfare gains) closely related to the implementation of the measure, through causal relationship.*  *What are the direct benefits of the effective implementation of the measure? Please specify the kind of direct benefits of the effective implementation of the measure.*  *What are the additional indirect benefits of the effective implementation of the measure?* | Text | | |
| Financial costs  *Value in € (Total + possible breakdown)*  *Suggested categories for the breakdown of costs: capital, land acquisition and value, operational, maintenance* | ***Total:*** | *Value in €* | *Text / Specify* |
| *Capital:* | *Value in €* | *Text / Specify* |
| *Land acquisition and value:* | *Value in €* | *Text / Specify* |
| *Operational:* | *Value in €* | *Text / Specify* |
| *Maintenance:* | *Value in €* | *Text / Specify* |
| *Other:* | *Value in €* | *Text / Specify* |
| Were financial compensations required? What amount?  *Describe if financial compensations were required, the compensation scheme (including units, beneficiaries, etc.), the total amount of money paid in €* | *Was financial compensation required: Yes /No* | | |
| *Total amount of money paid (in €):* | | |
| *Compensation schema:* | | |
| *Comments / Remarks:* | | |
| Economic costs  *What is the actual income loss (in some economic sectors) due to the implementation of the measure? Please specify the kind of income loss.*  *What are the additional costs that stem from the implementation of the measure and a result of it? Please specify the kind of additional costs.*  *Are there any specific costs the measure brought about which cannot be assimilated to the above-mentioned categories? Please specify the kind of other opportunity costs.* | *Actual income loss:* | | |
| *Additional costs:* | | |
| *Other opportunity costs:* | | |
| *Comments / Remarks:* | | |
| Which link can be made to the ecosystem services approach?  *Hint: The actual benefits of improving nature's water storage capacity are essentially linked to an improved provision of some of the following ecosystem goods and services:*  *Freshwater for drinking.*  *Water provision to deliver water services to the economy both for drinking and non-drinking purposes.*  *Water security (reliability of supply and resilience to drought).*  *Health security (control of waterborne diseases).*  *Flood security and protection.*  *Storm surge protection.*  *Biomass production.*  *Amenities (associated to habitat protection): fish and plants, tourism, recreation, and others.*  *Benefits of improved coastal water quality and ecological status for a sustainable commercial production of shellfish with human health and welfare values.* | Text | | |

## Monitoring & Maintenance requirements

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| --- | --- |
| Monitoring requirements  *Describe monitoring requirements: which parameters, how often, how many monitoring sites, location of these sites, etc.* | Text |
| Maintenance requirements  *Describe the maintenance scheme: requirements and intensity of, frequency of, responsible authorities, share or tasks, etc.* | Text |
| What are the administrative costs?  *These are expenses linked to information, monitoring and enforcement.*  *What were/are the costs of monitoring the operation of the measure(s) or any other cost incurred by the administration of the measure(s)? Please specify on what the money has/is been spent.* | Text |

## Performance metrics and Assessment criteria

|  |  |
| --- | --- |
| Which assessment methods and practices are used for assessing the biophysical impacts?  *Please describe e.g.: comparison to, paired watershed, pre vs. post, etc.* | Text |
| Which methods are used to assess costs, benefits and cost-effectiveness of measures? | Text |
| How cost-effective are NWRM's compared to "traditional / structural" measures? | Text |
| How do (if applicable) specific basin characteristics influence the effectiveness of measures?  *This field is important and needs a good deal of thought. It seems that the success of NWRM may be very dependent on the biophysical regime in which they are implemented. It would be really helpful for any potential practitioner to have enough information to evaluate whether or not the biophysical preconditions for successful NWRM implementation exist before addressing the much more complex socioeconomic challenges.* | Text |
| What is the standard time delay for measuring the effects of the measures?  *NWRM are multi-purpose and multi benefit measures but like other green infrastructures and on the contrary to grey infrastructure, their effects are not always immediately visible and need a certain time lapse to be fully operational and effective (free text allowed to enter the anticipated delay and the effective deviation from this finally found)* | Text |

## Main risks, implications, enabling factors and preconditions

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| --- | --- |
| What were the main implementation barriers?  *Were there delays in the implementation? Please describe the main implementation barriers (e.g. attitude of decision makers, stakeholders, public perception -e.g. NWRM perceived as part pf a problem, existing technical standards, physical constraints, conflicts of interests, legal restrictions, lack of expert knowledge and/or tools, limited financial resources and financing potential, wide dissemination of the project, etc.)* | Text |
| What were the main enabling and success factors?  *Please describe the main enabling and success factors (e.g. positive attitude of decision makers, willing stakeholders, positive public perception, solid governance and adequate institutional structures, fruitful public consultation, regulatory support, existing expert knowledge and/or tools, availability of financial resources and financing potential, etc.)* | Text |
| Financing  *What were the main funding sources, and what amount? Where different incentives and financial instruments used? Which ones? Has private investments been encouraged – how?* | Text |
| Flexibility & Adaptability  *Is the current implementation flexible and adaptable to changing baseline conditions? What does the adaptation of these measures requires? What costs could be foreseen?* | Text |
| Transferability  *When and where can a similar application be proposed, assessed and selected? What are the necessary preconditions?* | Text |

## Lessons learned

|  |  |
| --- | --- |
| Key lessons | Text |

## References

Note: To enter more references and key people please add rows as necessary

|  |  |  |  |
| --- | --- | --- | --- |
| Source Type  *Select from the drop-down menu* | Choose an item. | | |
| Source Author(s)  *Provide the Name of the author(s)* | Text | | |
| Source Title  *Provide the Tile of the reference* | Text | | |
| Year of publication  *Provide the year in the format (YYYY)* | Value | | |
| Editor/Publisher  *e.g. Journal/Volume/Issue* | Text | | |
| Source Weblink  *Direct weblink(s) of the reference* | Weblink | | |
| Key People  *List names, affiliation and contact details of key people who have communicated important information presented in this factsheet* |  | *Name / affiliation* | *Contact details* |
| 1. |  |  |
| 2. |  |  |
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