Environmental flow

Environmental flows describe the quantity, timing, and quality of water **flows** required to sustain freshwater and estuarine ecosystems and the human livelihoods and well being that depend on ecosystems.

It is essential to maintain the quantity, quality and duration of the flow sufficient to maintain the river and riparian ecosystem in a good state. The organisms living in rivers and riparian areas have adapted to natural dynamics of river. Even small changes in natural flow can significantly undermine the river ecosystem due to sensitive balance between biota and environmental conditions in the river

The identification of environmental flow, meaning the amount of water required for the aquatic ecosystem to continue to thrive and provide the ecosystem services. The most important objective is to achieve a good ecological status (GES) for all waters and to achieve Good Ecological Potential (GEP).

• water in rivers is renewable, it is finite and becomes insufficient to meet all the addressed needs.
• There is a pressure to develop an approach on how to assess and apply the concept of environmental flow in European countries. For example, in fisheries there is a strong trend towards restoring the original migratory fish stocks through natural reproduction.
• Considering environmental flow, hydropower production is the most obvious hindrance. There is a need to investigate suitable methods of mitigating the negative effects of hydropower production by using the environmental flow concept as a part of river restoration. This will enable more sustainable use of hydropower. For river and wetland ecosystems, the flow regime is the most important determinant of ecosystem function and services provided by these functions.Ecosystem services and human well-being components depend on the flow regime.

The Environmental Flow Indicator (EFI) is a percentage deviation from the natural river flow represented using a flow duration curve. This percentage deviation is different at different flows. It is also dependant on the ecological sensitivity of the river to changes in flow. The EFI is calculated within the Resource Assessment and Management (RAM) framework. This assessment gives an indication of where and when water is available for new abstractions. Where the assessment fails a more detailed assessment is required to understand if current abstractions and use of full licensed quantities are threatening the long term health of the river ecology.

http://www.ecrr.org/Portals/27/Poster_Olin_Sini_kesakuu_2013_En_10_07_2013.pdf

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