The Integrated Vegetation Management of the future will be systematically supported by powerful IT tools. One of the most powerful drivers for this development is legislation and regulation. Legal and regulatory requirements for documentation and reporting as well as for application for exemptions for measures of vegetation control and especially herbicide-based measures are constantly increasing and becoming more complex. These requirements cannot be fulfilled any longer manually and in addition on a case by case level but have to be addressed in a coordinated way on system level. That means e.g. that applications for exemptions for herbicide-based treatment in sensible areas should be undertaken at company level by means of a complete list of sections with intended herbicide treatment to be handed over to the authorities well in advance of the start of the vegetation control period. In the future, relevant treatment data will be systematically linked to areas with specific protection requirements such as nature conservation and water protection areas e.g.

A systematic and coordinated approach to documentation, reporting and application for exemptions can be effectively supported by powerful IT tools such as tailored GIS solutions with integrated digital databases related to railway infrastructure, current and historic treatment data and plant inventories as well as different types of protection zones.

In addition to the three functions mentioned above

1. Documentation of current activities and measures for vegetation control (applied measures, exact locations, for herbicide-based measures: amount of herbicides used)
2. Reporting of activities towards the authorities and the public
3. Application for exemptions for treatment of sensitive or protected areas with e.g. herbicides, e-government

IT solutions supporting integrated vegetation management can also be used for

1. Mapping of locations & distribution patterns as well as treatment status for invasive species (see WP 5)
2. Continuous monitoring of vegetation control activities and mapping of plant growth status
3. Impact assessment and control of quality level and target fulfillment for the application of single measures or bundles of measures of vegetation control per track area and on aggregated level
4. Strategic planning of measures and activities for vegetation control on the basis of current and historic data from impact assessment as well as data concerning track type and use specifications ( = track quality requirements)

The aim of WP 5 is to collect information, knowledge, best practices and future trends concerning IT solutions for integrated vegetation control and integrate the findings into the knowledge and exchange platform (WP 2). All documentation will be done on the basis of standardized fact sheets.

For the development of recommendations for IT solutions it should be taken into account that the developed new IT tools and solutions have to be either integrated with existing IT tools for reporting & documentation or at least linked via well-defined interfaces to allow for an optimized data flow and overall efficiency of the IT systems.

Output: Overview over and requirements for IT tools and solutions for supporting IVM – Integrated Vegetation Management strategies and approaches (report)

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