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Integrating soil erosion prevention activities into forest management plans: A review

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Abstract: Forest ecosystems offer many ecological and socio-cultural services such as erosion prevention, climate regulation clean water production, and recreation as well as economically beneficial products such as industrial raw wood materials. The sustainable use of these products and services is required forest management plans (FMPs) that are prepared for a specific period of time and can be updated periodically. Along with the understanding of how valuable the ecological and socio-cultural services of forests are in the international public opinion, the forest management planning approaches in the developed countries have also evolved and changed. For that reason, the Ecosystem Based Functional Planning (EBFP) systems which the multiple use of economical and non-economical values of a forest are emphasized in accordance with international processes has been officially adopted in today's Turkish Forestry Services, instead of only wood production oriented classical planning approach. In practice, however, planners in Turkey are faced with many difficulties in reflecting the conservation and regulatory services of the forest into the FMPs, such as not being able to easily adopt the values of the forest outside wood production, their criteria and indicators not being clearly displayed, or these indicators being not measurable, reportable, or verifiable. The present study, therefore, aims to review the research conducted on adaptation of the criteria and indicators related to integration of the soil erosion prevention functions into sustainable FMPs. In this context, the soil erosion prevention functions in the current FMPs of Turkey were examined and the problems and deficiencies were identified. Then, any erroneous decision making processes that these deficiencies could cause were reported. Any worldwide adaptation of integrating the soil erosion prevention functions into the FMPs were searched, summarized and the feasibility of integrating these studies into Turkey's forestry is discussed. At the end of the study, a new and practical integrating methodology that balances the needs of the planning team and the requirements of the scientific approach was emphasized and some suggestions were made. In conclusion, connecting the two different disciplines will close an important gap between the erosion control and forest planning studies carried out by different institutions independently for many years in Turkey. Thus, it is considered that integrating the soil protection functions of the forest ecosystem into every level of the sustainable forest management plans as a more effective control mechanism will reduce million tons of valuable topsoil lost every year.

Keywords: Soil erosion prevention, Sustainable forest management plans (SFMP), Forest ecosystem services