

The 2014 implementation plan for expansion of erosion control works focusing on living spheres in Korea

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1. Introduction

Recently in Korea, the risk of landslides has been increased due to regional heavy rainfall caused by climate change and the public interest is increasing on the landslide reduction effect of erosion control facilities as the effect is proven. Accordingly, the necessity to expand erosion control facilities to prevent the loss of life and property of the residents at living spheres has been increasing and also the necessity to reinforce publicizing the effect of erosion control works became an issue to make smooth negotiations with landowners. Therefore, the 2014 erosion control works are driven by the basic policies that ① erosion control works in living spheres vulnerable to landslide shall be executed as the top priority, ② assessment, designing and construction of erosion control works appropriate to local topography and disaster prevention function shall be executed, ③ disaster prevention function shall be reinforced by thorough safety check and post management for erosion control facilities, ④ onsite work ability and system shall be reinforced and improved for the quality enhancement of erosion control works.

2. Scale and expense of erosion control works

The 2014 erosion control works shall aim to protect people's life and property and conserve the national land from landslides (or debris flow) through erosion control works focusing on living spheres vulnerable to landslide, and they shall be executed with total budget 385,194 billion won (295,018 million won from the central government and 90,176 million won from local governments) (Table 1).

Table 1. Details of erosion control works by detailed work

Name of work	Scale	Expense (thousand won)	Name of work	Scale	Expense (thousand won)
Mountain erosion control	222 ha	17,982,001	Stream conservation works	584 km	111,544,001
Construction of erosion control dam	899 sites	224,749,670	Maintenance of erosion control dams	447 sites	3,129,000
Construction of coastal disaster prevention forests	40 ha	4,000,000	Restoration of coastal erosion area	11.5 km	3,656,862
Forest watershed management	5 sites	5,655,000			

3. Detailed implementation plan

3.1. Erosion control works in living spheres vulnerable to landslide

The subject work sites shall be selected, as the top priority, among the sites near the living spheres vulnerable to landslide and worried for the damage of human life and property by landslides (or debris flow). Also for public facilities such as roads, the areas worried for the damage of human life and property due to debris flow (or landslide) shall be selected, and the areas worried for the damage of human life due to debris flow near the major roads, which are also selected as the collaboration works with the Ministry of Land, Infrastructure and Transport and the National Emergency Management Agency, shall be reflected with priority. In the selection of subject sites, sufficient prior explanation shall be given to landowners and local residents about the necessity of erosion control work so as to prevent any occasion to change the relevant subject site in the middle of the work term. In the execution of the works, systematic erosion control works that include sites from mountain area to torrential streams and the areas of potential damages shall be conducted by the unit of area to eliminate possible disaster. On the other hand, for the areas worried for the reoccurrence of damages of human life and property or land-creeping areas among the subject sites for erosion control works, slope reinforcement method (e.g., earth anchor) shall be implemented in the designs according to local environment and condition.

3.2. Construction of coastal disaster prevention forests and systematic operation of coastal erosion prevention works

New constructive works for disaster prevention forests shall be conducted systematically and steadily from the areas where larger damages are worried for. Coastal erosion prevention works shall be conducted in an eco-friendly way to be harmonized with the surrounding environment according to the work priority in consideration of erosion degree and type. Also a construction plan for the coastal disaster prevention forest of Saemangeum reclaimed land shall be reviewed and its detailed action plan shall be established according to the collaboration agreement with the Korea Forest Service and the Saemangeum

Development Agency.

3.3. Substantializing the feasibility assessments on the subject sites of erosion control works

In consideration of the areas vulnerable to landslide, comprehensive feasibility assessments on the necessity, suitability and eco-friendly aspect of erosion control works shall be conducted as consignment works of the Korean Association of Soil and Water Conservation. The cause of landslides and the amount of debris flow shall be analyzed and the suitability of the works regarding the details of the works including the kinds, type, scale and layout of the structures shall be reviewed so that the direction of erosion control works should be suggested in detail. On the other hand, if the kinds of works or the implementation of construction methods are not appropriate for local areas vulnerable to landslide, other appropriate alternative solutions to prevent human life damages shall be suggested.

3.4. Design and construction suitable to the prevention of landslide disaster

An in-house design deliberative council to enhance the quality of designing erosion control works shall be organized and operated. When designing erosion control works, stability shall be considered above all so as to obtain sufficient reduction effects of landslide (or debris flow) disaster and, if possible, they shall be designed with eco-friendly construction methods and materials. Torrent erosion control works shall be conducted as systematic works to connect mountain area-stream-living sphere, and for new erosion control dams, the requirements for the installation of national location point number plates shall be reflected in designing according to the Article 8, Provision 5 of the Road Name Address Act.

3.5. Reinforcement of safety check and maintenance on erosion control facilities

The inspection on erosion control facilities shall be consigned to the Korean Association of Soil and Water Conservation. They shall take immediate emergency measures for the sites suspected in safety after inspection and execute necessary safety measures such as precision safety inspection. For the erosion control dams worried for the safety due to deterioration or damages, not only safety inspection and emergency repair but also additional installation of gully stabilization structure or check dams at upper and lower streams shall be considered. The management on the erosion control dams shall be conducted in accordance with the "Guideline for selecting and working on the dredging sites of erosion control dams, and the installation of erosion control works and their management data shall be synchronized in accordance with the "Guideline for the users of erosion control dam management register". The erosion control facilities shall be managed by an erosion control work operator according to the Article 5 of the Erosion Control Law and, if the competent administrative agency is changed for purchase or exchange, the new operator shall conduct the management.

3.6. Reinforcement of the competent ability of onsite erosion control works

In order to reinforce the competent ability of onsite erosion control works, "Erosion Control Technology Institute", a specialized training institute to reinforce the competent ability of erosion control, shall be operated. In addition, onsite advisory panels (forest professional engineer, Korean Association of Soil and Water Conservation, ex public officers) shall be organized and onsite consultation for erosion control works (e.g., rehabilitation of landslide-affected area) and itinerant education (monthly from February to June) shall be conducted. Also, erosion control work quality contests shall be organized for the erosion control work sites of the current year.

3.7. Miscellaneous

Besides the above, complementary construction and utilization of "model area of erosion control work", establishing local erosion control plans, application of estimating standard for erosion control work reflected with local conditions (effective from February 14, 2014) and preparation of legal grounds for land purchase and exchange according to the amendment of the Erosion Control Law shall be conducted. In addition, thorough post-management for the designation and cancellation of erosion control sites, inspection and maintenance of safety fence and warning signs around erosion control sites and amendment of erosion control technical manual shall be carried forward.

4. Action schedule

- Establish the operation plan of Erosion Control Technology Institute: January, 2014
- Erosion control work quality contest: January, 2014
- Announce the estimating standard for erosion control work: January, 2014
- Establish plans for local erosion control works: February–November, 2014
- Advise and check the erosion control designs and construction status: March, 2014
- Onsite consultation for erosion control works and itinerant education: March–June, 2014
- Monitoring of construction sites of erosion control works: July–September, 2014
- Erosion control engineering expert course (Erosion Control Technology Institute): September, 2014
- Assess on the feasibility of the 2015 erosion control works and advise/check the designs: September–December, 2014

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