



Flexi Check Dam (Rubber Dam) Developed From Textile-Rubber Composite: A Novel Agrotextile Application



Flexi Check Dam



Flexi check dam, also called as Rubber dam, is a special type of geosystem that are made up of long tubular-shaped textile composite secured to a channel bed. A new textile-rubber composite material according to dam design requirement has been developed in a project by CIRCOT under the ICAR/NAIP sponsored consortium that also includes Indian Rubber Manufacturers Research Association (IRMRA), Thane; Directorate of Water Management (DWM), Bhubaneswar and Kusumgar Corporates, Mumbai, after extensive optimization of weave,

GSM, coating material, surface activation, rubber compound, room temperature vulcanizable adhesive and jointing method. This rubber-fabric composite has been further shaped into a suitable waterproof and wrinkle-free dam as per the required size of each check dam. A low cost farmer friendly inflation–deflation mechanism has also been developed with a suitable installation method on a concrete base. Prior to this development, no indigenous technology was available for flexi check dams.

Advantages of Flexi Check Dam

- ⇒ Better watershed management
- ⇒ Control of both flood and drought situation
- ⇒ High water storage and water use efficiency
- ⇒ More productivity of agriculture and crops due to stored water
- ⇒ Economical and feasible for agricultural purposes

Benefits of Flexi Check Dam for Indian Agriculture

India is largely an agriculture driven economy. Indian rainfall is erratic most of the times which causes heavy rainfall but less number of rainy days, especially in the eastern region of the country. After a spell of heavy rain, 60 % rain water is lost through run-off. Many small and large watersheds or check dams which are generally concrete in nature and is spread all over the country is the preferred technique of water management especially by State Governments for small land holdings. But the concrete check dams exhibit many disadvantages. As a solution to the disadvantages observed in concrete check dams, the Flexi Check Dam (Rubber Dam) has been indigenously developed as an effective tool for watershed management.

Impact—Application, Commercial and Environmental

1. Inflatable-flexible check dams were found to be effective in conservation and diversion of water for improving crop productivity and multi-cropping
2. Additional water storage of 4000 m³ to 5000 m³ achieved at any given point of time
3. Crop production up by 60% in the kharif (monsoon) and 45% in rabi (winter) seasons
4. Four irrigation cycles achieved for kharif crops due to constant availability of water
5. About 31 % increase in cropping intensity due to cultivation of other crops and vegetables viz., green gram, sunflower and cucumber
6. Farmers have opted for multiple cropping as well as better agricultural inputs because of availability of water throughout the seasons
7. The life of the flexi check (rubber) dam is around 20 years

Cost

Total cost of the rubber composite including installation is around Rs. 39,600/- for five square meters. This cost is exclusive of base concrete structures.



CIRCOT's Flexi Check Dam in without & with full of water storage



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