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Soil and water Conservation Engineering

Presented By-

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Engineering/Physical/Mechanical measures are structures built for soil & water conservation.

Aims:

- increase the time of concentration of runoff, thereby allowing more of it to infiltrate into the soil
- divide a long slope into several short ones and thereby reducing amount and velocity of surface runoff
- reduce the velocity of the surface runoff



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Contour Bunding

- Bunding is constructing small bunds or embankments across the slope of the land. Bunds constructed along contours or with permissible deviations from contours are called contour bund.

- Long slope is cut into series of short ones which act as barrier to flow.

Thus it:

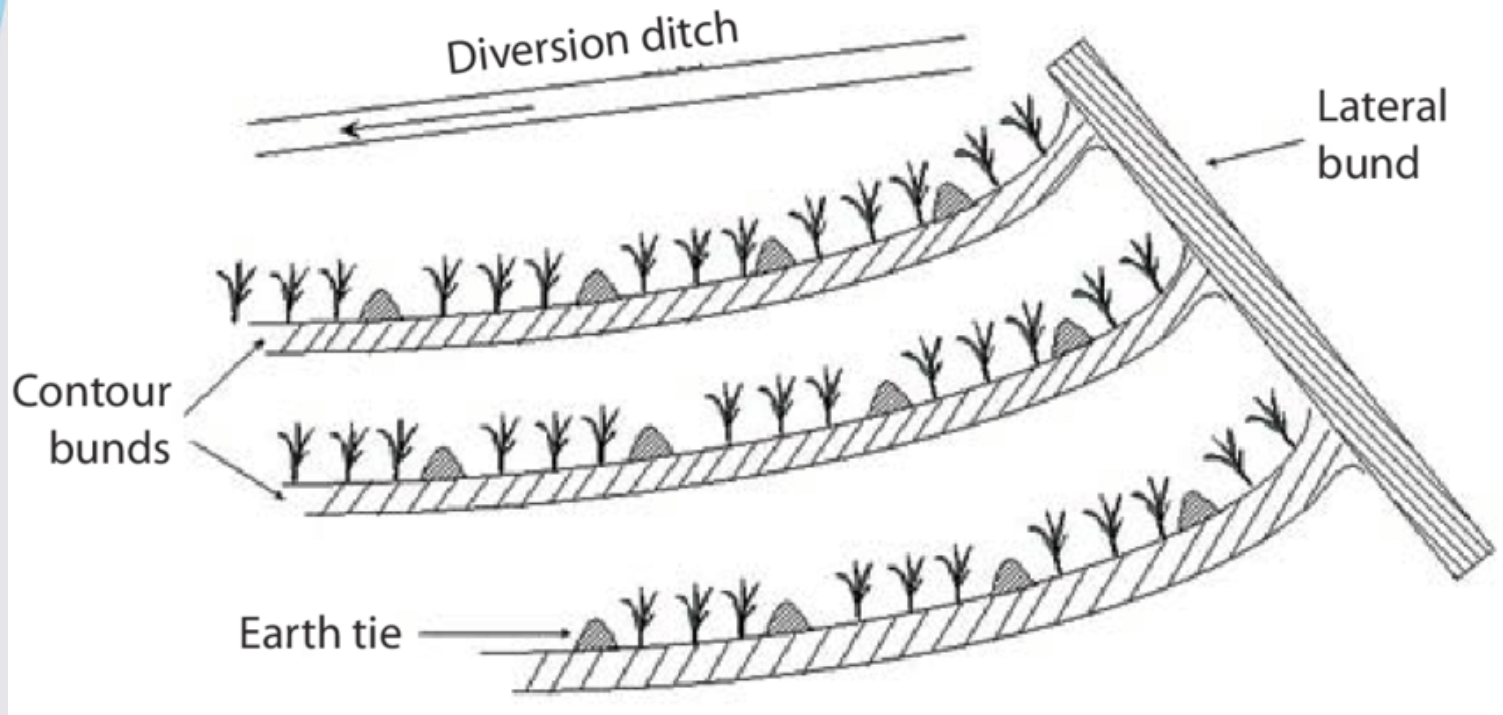
- Divide the length of slope
- Reduce volume of runoff
- Allows more time for impoundment
- Minimizes the soil erosion
- Annual rainfall less than 600 mm.



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Contour Bunding





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Contour Bunds





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Limitations

The limitations of contour bunds are:

1. The contour bunds are suitable for those areas, which receive the annual rainfall less than 600 mm.
2. It is not suitable for clayey soils.
3. Contour bunding is not suitable on the land slopes greater than 6%.



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Graded Bunding

- Graded bunds are laid out in areas where the land is susceptible to water erosion, the soil is less permeable and the area has water logging problems.
- A graded bund system is designed to dispose of excess runoff safely from agricultural fields.
- A graded bund is laid out with a longitudinal slope gradient leading to outlet. The gradient can be either uniform or variable.



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Specifications

- In heavy and medium rainfall areas (> 70cm annual rainfall)
- In clay soil with lesser rainfall.
- Grades of bunds is 0.2 to 0.3/0.4% towards outlet.
- Straight natural waterways with vegetation are taken as terrace outlets.



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Limitations

- Due to crossing of farm implements, the bunds are disturbed and some soil is lost.
- Proper maintenance is required at regular interval.
- It is not suitable on the land slopes less than 2% or on the slopes greater than 8%.
- It requires establishment of grassed waterway as an outlet for safe disposal of surplus water, accumulated in the bunded areas.