

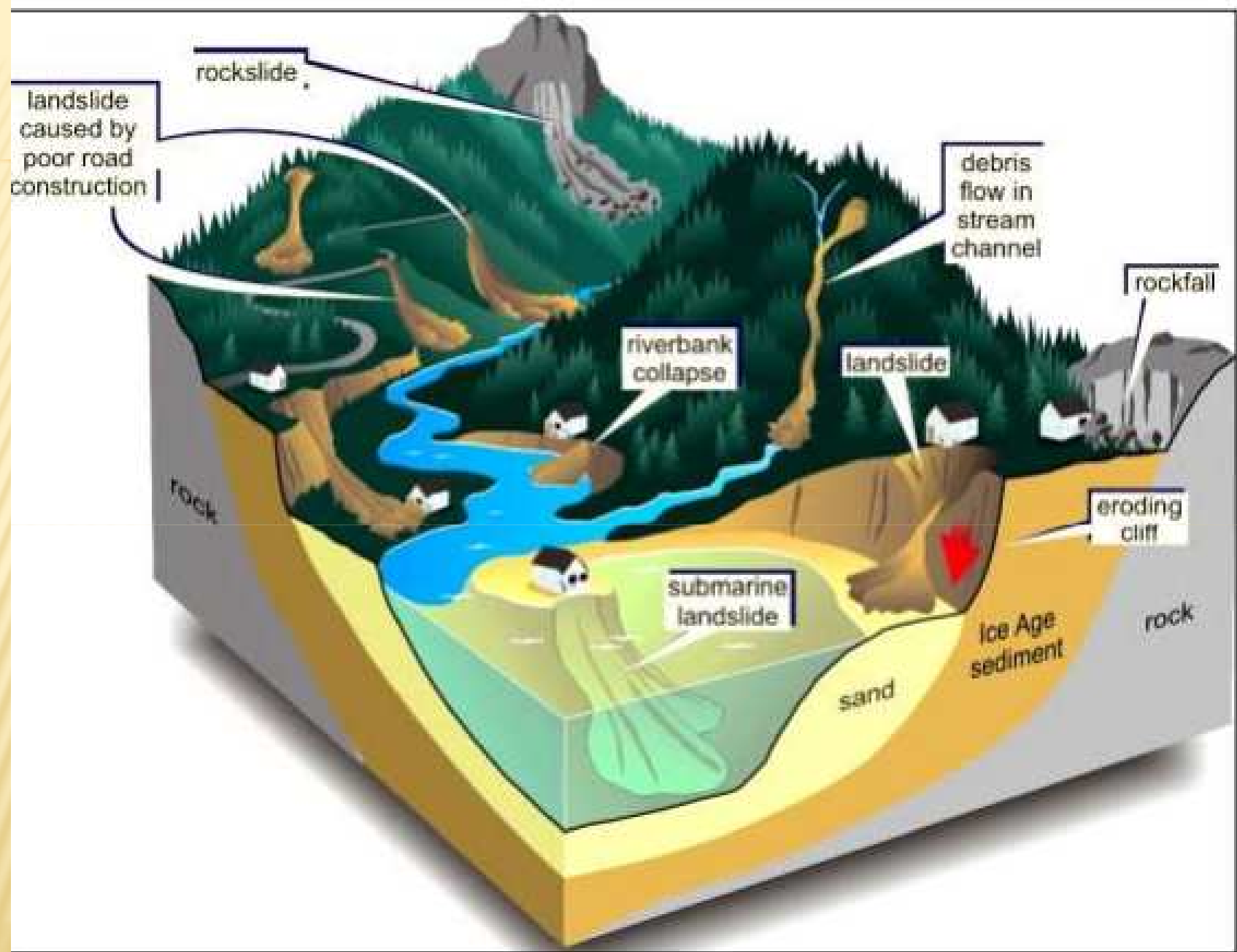
# CLASSIFICATION OF LANDSLIDE

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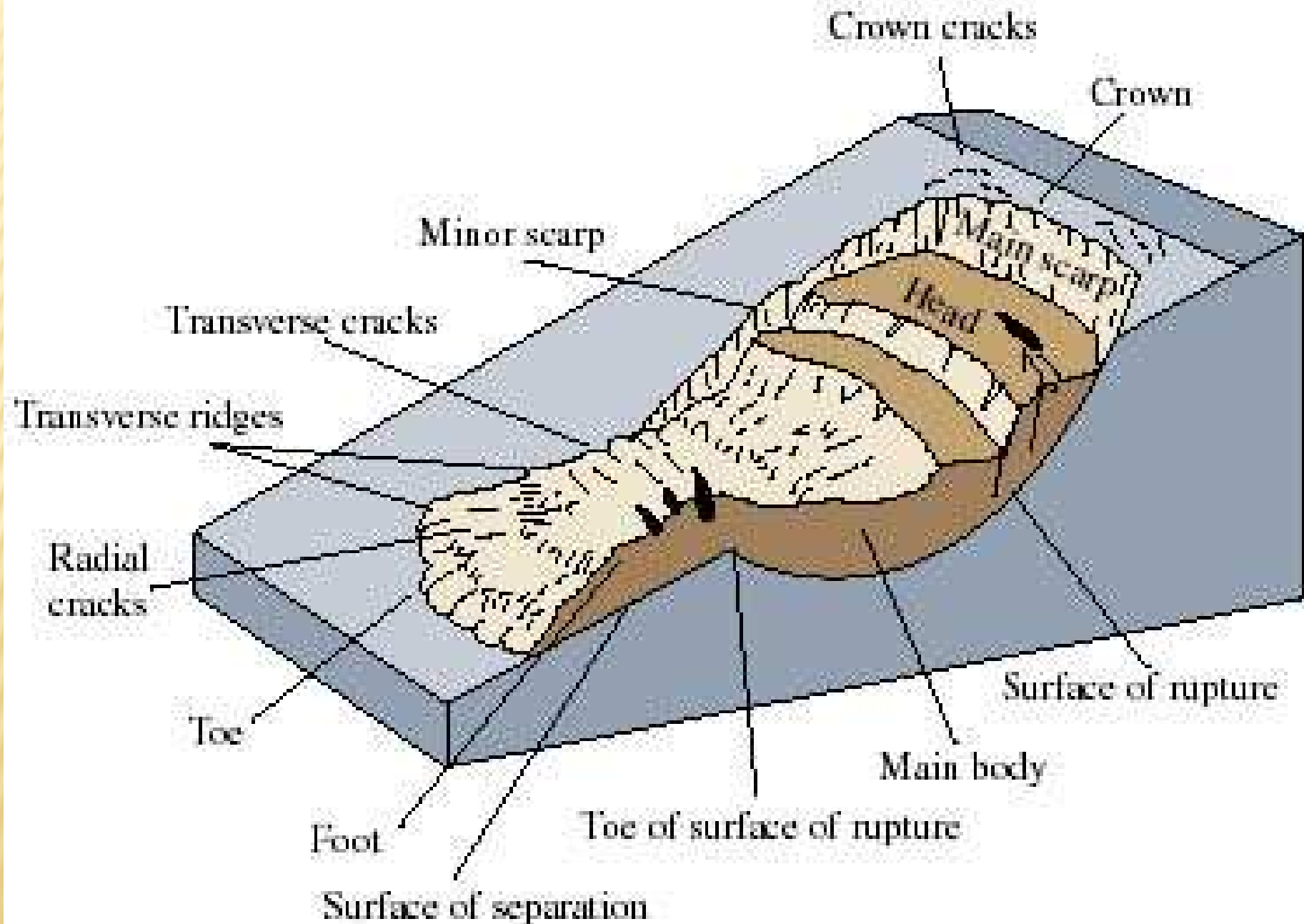
# LANDSLIDE

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- ❖ The term "landslide" describes a wide variety of processes that result in the downward and outward movement of slope-forming materials including rock, soil, artificial fill, or a combination of these.
- ❖ The materials may move by falling, toppling, sliding, spreading, or flowing.



Landslide in hilly terrain (Source: <http://web.viu.ca/geoscape/images/landslides.jpg>)

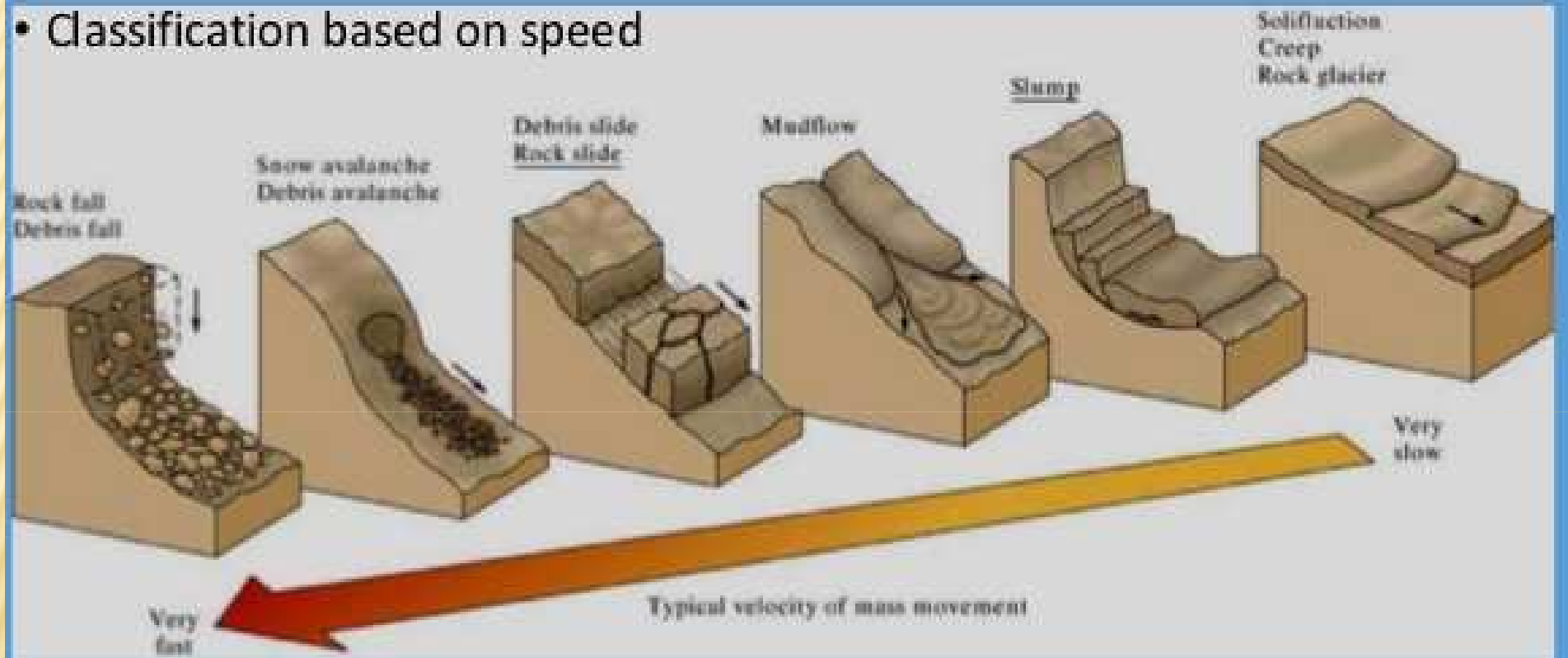


# CLASSIFICATION???

- ❖ The various types of landslides can be differentiated by the kinds of material involved and the mode of movement.
- ❖ Other classification systems incorporate additional variables, such as the rate of movement and the water, air, or ice content of the landslide material.

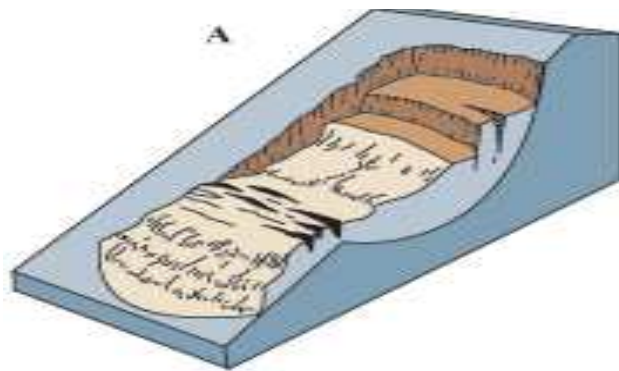


- Classification based on speed

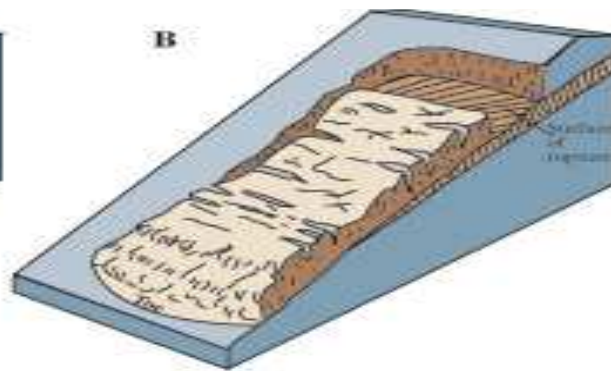


### Classification of Landslides suggested by Varnes (1978)

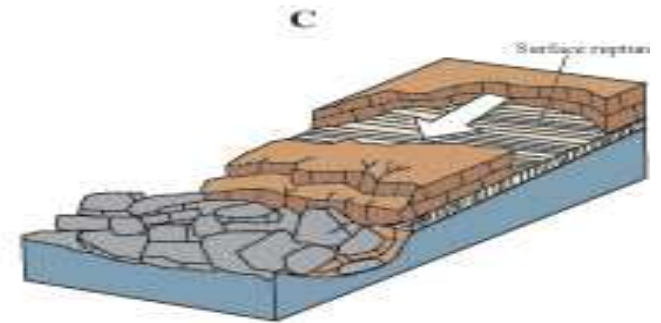
Type of movement				Type of material	
<b>Bedrock</b>				<b>Engineering soils</b>	
				<b>Predominantly coarse</b>	<b>Predominantly fine</b>
<b>Falls</b>			<b>Rock fall</b>	<b>Debris fall</b>	<b>Earth fall</b>
<b>Topples</b>			<b>Rock topple</b>	<b>Debris topple</b>	<b>Earth topple</b>
<b>Slides</b>	<b>Rotational</b>	<b>Few units</b>	<b>Rock slump</b>	<b>Debris slump</b>	<b>Earth slump</b>
	<b>Translational</b>	<b>Many units</b>	<b>Rock block slide</b>	<b>Debris block slide</b>	<b>Earth block slide</b>
<b>Lateral spreads</b>			<b>Rock slide</b> <b>Rock spread</b>	<b>Debris slide</b> <b>Debris spread</b>	<b>Earth slide</b> <b>Earth spread</b>
<b>Flows</b>			<b>Rock flow (deep creep)</b>	<b>Debris flow</b>	<b>Earth flow (soil creep)</b>
<b>Complex</b>	<b>Combination of two or more principal types of movements</b>				



**Rotational landslide**



**Translational landslide**



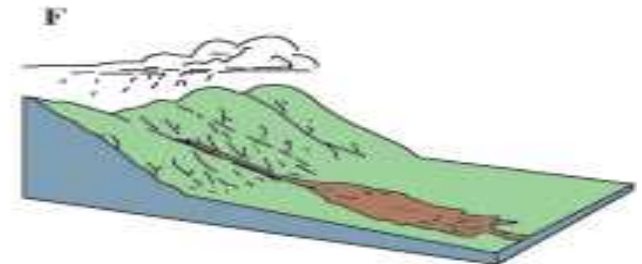
**Block slide**



**Rockfall**



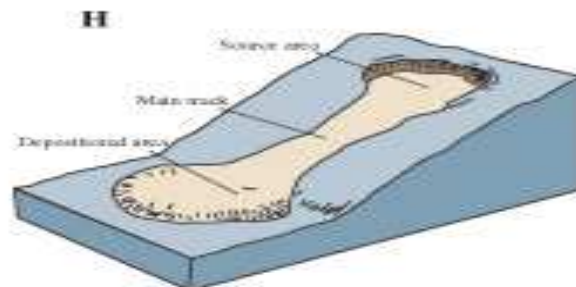
**Topple**



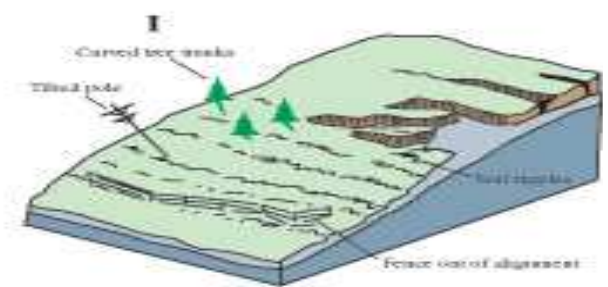
**Debris flow**



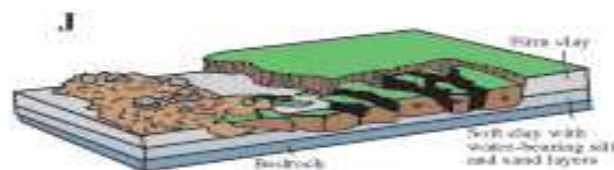
**Debris avalanche**



**Earthflow**



**Creep**



**Lateral spread**

Source: Google



# CATEGORIES OF LANDSLIDES IN INDIA BY NIDM

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- ✦ **CATEGORY I:** Landslides of large dimensions that is located over or in close vicinity of inhabited areas like urban settlements or fairly large rural settlements. Activity on these slides can result in loss of human lives, dwellings on large scale.
- ✦ **CATEGORY II:** The landslides that may occur on the fringes of inhabited areas and result in limited loss of life and property.

- ✘ **CATEGORY III:** Landslides which are fairly large and affect infrastructural installations like strategic and important highways and roads, rail routes and other civil installations like various appurtenant structures of hydroelectric and irrigation projects
- ✘ **CATEGORY IV:** Landslides of small dimensions that occur away from habitations and do not affect either humans or their possessions.