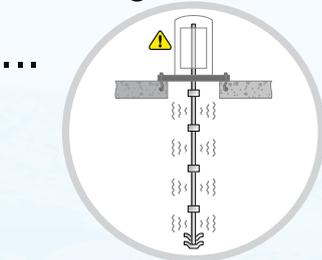


Q: *In suspension, the weight of entire motor and pump is at the end - will it not lead to oscillation/ vibration, like pendulum?*

Answer:

- 1) Both **AVT & VT** pumps are prone to **Pendular Oscillations**.
- 2) While discomfoting, in case of AVT pumpsets these oscillations are **NOT** Dangerous due to Rigid Single Robust Shaft.
- 3) However in case of Conventional (*Extended Shaft*) VTs, since the Drive & Line Shaft themselves are as long (*as the pump column pipes*) & the harsh fact that they depend on a Few Microns of Clearances (*between the Shaft Male Bearings & Female Bush Bearings*) for safe operation of lineshaft bearings - hence such Pendular Oscillations are Dangerous for VTs



3.1 This fact is borne out by **GoWB KMWSA's O&M Manual** (*Refer Fig.A*) a par from many other **Govt. manuals** which **Restrict the Maximum Shaft Length for VTs to 15m.**

Figure A

CHAPTER 11
**OPERATION AND MAINTENANCE
 OF PUMPING MACHINERY**

11.3.1.6 Problems in Long Column Pipes in VT Pump

Very long column pipes in VT pump at river intake or intake well constructed in impounded reservoir are required to be provided due to large fluctuations in water level from minimum water level in summer to high water level in monsoons. Such **long column pipes (if length exceeds about 15 m) usually cause problem of fast wearing of line- shafts bearings in case of water lubricated pumps. Such longer suspended assembly is also more prone to rotation or swinging of column assembly due to vortices.**