

CHAPTER 5

CONCLUSION

In this work we modelled an earth dam having a conduit of flow upstream-downstream to the foundation of the earth dam to see the evolution of the collapse ((*rénard*) tunnel erosion) of the conduit. Various parameters will influence the process of collapse,

1. The soil mechanics behavior
2. The height of the earth dam
3. The rayon of the cavity
4. The shape of the conduit

The increase in the value of undrained cohesion is required to have the stability of the earth dam when that C_i is sudden a phenomenon of (*rénard*) tunnel erosion. Limiting cohesions which are shown for each model of earth dam can be used as reference for real checks of thin of the earth dams with respect to this phenomenon.

The assumption of *Greg Hanson* which notes that widening is controlled only by the shear stress, is not checked in all the cases.

We also find that the rupture occurs in two times. Initially there is collapse of the roof of the cavity which involves a vertical subsidence of covering in the conduit with formation of a breach, then the widening of the breach by formation of a slope.

However, there remain things to be improved. Firstly, it is necessary for us to have the mechanical behavior of the *radoucissant* model based on experimental results. Work that we carried out watch that the Mohr Coulomb Model with softening 2 is close to the Mohr Coulomb Model, but it makes it possible to see Figureing zones in rupture more marked. The optimal widening of a conduit when collapse occurs. We also need an approach coupled of erosion due to the circulation of water in the conduit and its impact on the loss of stability.