TECHNISCHE UNIVERSITÄT DRESDEN

Fakultät für Forst, Geo- und Hydrowissenschaften

Risk Management of Extreme River Floods

Hydraulic Aspects

- a Post-/Pre-Event Perspective of the Elbe Flood August 2002 -

Flood Protection Concept

After the flood 2002 the politicians discussed a catchment-based consider-ation of the rivers.

Therefore transboundary issues have to be considered. All states that border the Elbe catchment are integrated in the International Commision for the Protection of the Elbe (IKSE).

Since 2003 the Flood Protection Conception (HWSK) is available for the federal state of Saxony. All in all there exist 47 concepts. Three of them are developed for the Elbe between Schöna and Torgau.

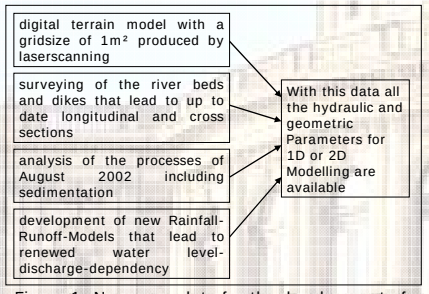


Figure 1: Necessary data for the development of the concepts

By modelling different alternatives all measures were checked regarding their flood protection effectivity. As a result a prefered variant will be recommended to the Ministry.

Which measure will be realized to a certain point in time is decided by an enactment of the Ministry after applying a priorisation method.

Following possible measures and necessary measures with high priority are demonstrated which will be realized in Dresden.

Sources:

Dokumentation des Hochwassers vom August 2002 im Einzugsgebiet der Elbe - IKSE

www.murk.nrw.de/sites/arbeitsbercihe/boden/hochwasserschutz/fuenfte.htm

www.nittenau.de/hochwasserschutz/img/flutsperre.JPG

Possible measures

• Rebuilding of the former drainage systems in the Elbe bayou post-flood: to drain areas, which are effected by flood and prolonged high groundwater level.

• Reconstruction of buildings to improve the discharge manner decrease of water level.

• Elimination of flow obstacles to decrease roughness.

• Cleaning of the river bottom from rampantly growing aquatic plants in the bayous to decrease water level.

• New development of bridges (increase bridge fewer pillar) to improve the discharge manner (decrease drift).

• Combination of permanent and mobile flood protection walls. Figure 2 shows examples of a mobil flood protection wall.

Figure 2: Different kinds of mobile flood protection walls

• Reconditioning, increasing and extension of dikes and bayous to protect the back-country from a certain design flood.

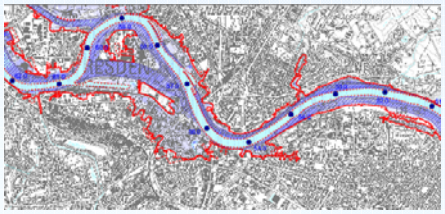
• Built streets in a higher level to use them for evacuation.

• Disposal of sedimentation in the riparian areas to decrease water level. Removal of bushes and trees in the river banks to increase the flow velocity.

• Utilisation of orchards as controllable polders (fig. 3) to create additional retention areas.

Figure 3: Scheme of a polder

Current projects in Dresden



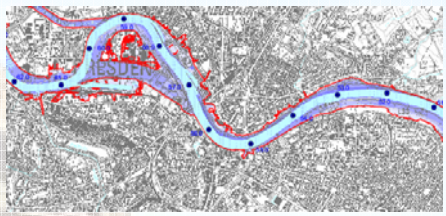


Figure 4: Inundation area HQ 100 - actual condition vs status with all conceptional measures realized

Measures to protect the old town, the district Friedrichstadt and the northern part of the Kaditz bayou are under construction or in the phase of planning.

The Old Town and the district Friedrichstadt will be protected by temporary flood protection measures (flood protection gates and sheetings). Deconstruction of the ice rink in the Ostragehege to enlarge the cross section of the running-in area of the bayou. To decrease the roughness in this area smaller building will be decontructed. The heightening and elongation of the northern dike of the Kaditz bayou to protect wide areas of the districts Mickten and Trachau.

Kneeling the bottom of both bayous by 0,40m to decrease the water level.

Figure 5: localisation of the rink in the Ostragehege

International Teaching Module
FLOOD*master*
Integrated Flood Risk Management of Extreme Events

supported by

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