

4 FLOODING

The floods in upper Mekong and tributaries to Mekong are normally created by rain storms lasting for some hours or a few days at most. They are difficult to predict, but only a small reduction of water level in the reservoirs could halt the flood. Since most available inflow records are monthly data a flood event of only a few days could not be simulated for the whole basin.

Normally the floods are reduced by dam structures. There are two reasons for this:

1. The reservoir is not full and flood events during in particular the first period of the wet season will be “trapped” by the reservoir.
2. The reservoir is dampening the flood because of surcharging between full supply level and maximum flood level.

The dams might however increase the flood in rivers further downstream if the flood from the area normally passes before the peak flood occurs in the main river. This might be the case for Nam Theun and Mekong. Although the size of the flood from the tributary will be reduced due to dam construction, the flood might be prolonged, the peak could be delayed and come on top of an existing flood in the main river.

By comparing the daily record for Nam Theun (1998-2002) with the record from Mekong just upstream Tonle Sap (1966-2001) the annual maximum discharge in Nam Theun might as well occur before the maximum level in Mekong as after the maximum level. The floods in Nam Theun may be characterises as typical flush floods compared to the slowly changes in Mekong, see flood occurring in Sept. 2002 (approx. $2.0 \text{ m}^3/\text{s km}^2$) plotted in *Figure 4-1*. Extreme floods incidents recently in other tributaries to Mekong was Se San $1.2 \text{ m}^3/\text{s km}^2$ on 3 Nov. 1996 and Sre Pok (Krong Kno) $1.3 \text{ m}^3/\text{s km}^2$ in 2000 [11].

The extreme flood in Nam Theun had an impact on Mekong, but since the base flow in Mekong was on the way down a delay in the flood (caused by NT2) would also reduce the flood in Mekong. The peak flood in Nam Theun may occur both before and after the peak flood in Mekong. Hence, if the flow in Mekong is increasing, a delayed flood from NT2 might increase the flood in Mekong. If the flow in Mekong is decreasing the NT2 will reduce the flow (compared to the natural situation)

Figure 4-1. Daily discharges for Mekong just upstream Tonle Sap and the discharge in Nam Theun, during a high flood in Nam Theun.

