Table 6.5. SPS for the Chambal watershed in India

Watershed	*Area size (km²)*	*SPS (mm)*		
		1 day	*2 days*	*3 days*
	5 000	320	424	472
	10 000	294	380	424
	20 000	258	338	380
	30 000	238	320	350
	40 000	220	300	324
	50 000	203	280	310
Chambal	46 073	208	285	314
Banas	48 577	206	282	312
Kali Sindh	25 741	244	330	362
Parvati	14 122	278	360	403
Kunar	4 507	324	438	480
Kunwari	7 610	307	404	443

(iv) The moisture adjustment factor (MAF) is calculated using

MAF = MMF x LAF x BAF

If it is unnecessary to calculate MMF, LAF and BAF separately, MAF can be calculated with the following simplified relation

$$MAF = (W_3)_{h2}/(W_1)_{h1}$$

(v) The area reduction factor (ARF) is obtained from area and precipitation depth analyses for a number of large storms. ARF for watershed areas between 0 and 10 000 km² are listed in Table 6.7. The ARF value is the ratio between the areal rainfall and the rainfall at the storm centre, for the given area. ARF for any area can be obtained through interpolating the ARF/area relationship curve drawn for the particular area and its ARF in the table.

Table 6.6. Moisture maximization factors for three typical storms

Storm occurrence date	*MMF*	*Storm area*
27–29 June 1945	1.29	404, 405, 406, 407 and 408
21–23 July 1971	1.31	404, 405, 406 and 407
22–24 July 1986	1.29	404, 405, 406, 407 and 408

Note: The storm area numbers in the table are the watershed numbers.

(c) Estimating PMP for design watershed:

(i) If the DAD curve for the typical storm is available for the design watershed or its surrounding regions, PMP is determined by the precipitation depth R (found using the area of the design watershed) multiplied by MMF, that is,

$$PMP = MMF \times R$$

Table 6.8 lists PMP from the standard areas of the Chambal watershed determined through moisture maximization.

(ii) If there is no DAD curve available for the design watershed or its surrounding regions, the rainfall R is determined by looking up the DAD enveloping curve. Since the project has involved storm transportation, both displacement adjustment and barrier adjustment should be applied. Therefore, PMP is calculated using the equation

$$PMP = MMF \times MAF \times BAF \times R$$

(d) Estimating PMP for each grid point: To facilitate networking, the Chambal, Betwa, Sone and Mahi watersheds were divided into a