5.8

State i - # units of water in the dam (at the beginning of the month)

$i = 0, 1, 2, 3$

Decision k = # units of water that should be released during the month

$k = 0, 1, 2, 3$

Transition matrices $P(k) = \{p_{ij}(k)\}$

release no units ($k=0$):

i \ j	0	1	2	3
0	1/6	1/3	1/3	1/6
1	0	1/6	1/3	1/2
2	0	0	1/6	5/6
3	0	0	0	1

$= P(0)$

← if it contains more than 3 units of water excess water is released

release 1 unit ($k=1$)

0	–	–	–	–
1	1/6	1/3	1/3	1/6
2	0	1/6	1/3	1/2
3	0	0	1/6	5/6

$= P(1)$

← $k > i$ cannot release water we do not have.

$$\begin{pmatrix} - & - & - & - \\ - & - & - & - \\ 1/6 & 1/3 & 1/3 & 1/6 \\ 0 & 1/6 & 1/3 & 1/2 \end{pmatrix} = P(2)$$

$$\begin{pmatrix} - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ 1/6 & 1/3 & 1/3 & 1/6 \end{pmatrix} = P(3)$$