

Introduction

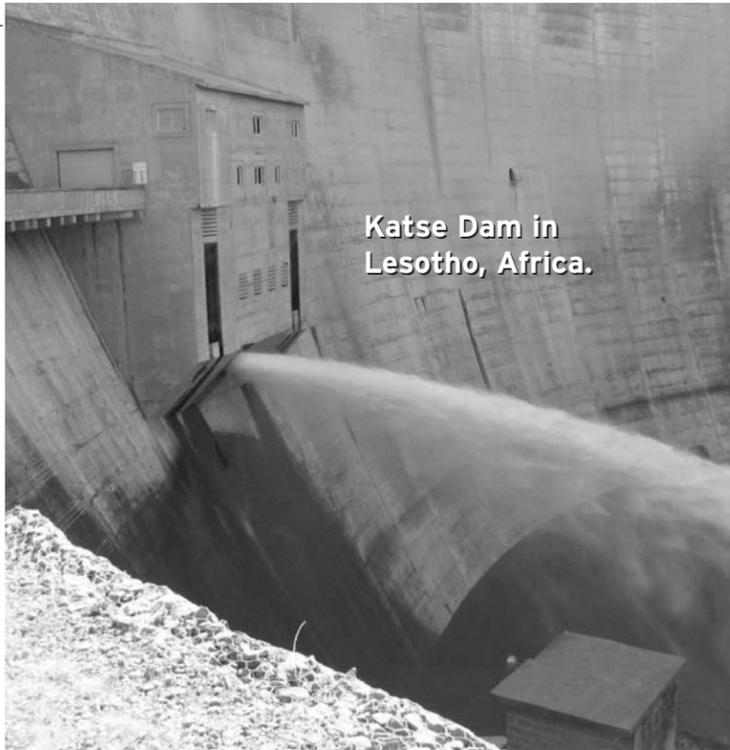
People make mistakes. We make them all the time. Little mistakes, big mistakes—it is only human. The strange thing is that sometimes we know right away that we have made a mistake. But other times it's not so obvious. And, it's only after time has gone by that we can see that, while we were trying to make something good happen, we also made something bad happen. I think that's the toughest kind of mistake to make; one where you think that you are doing the right thing, but in the end bad things happen too.

My grandfather worked on a project like that. It was a dam in California, called Friant Dam. He helped build Friant Dam on the

San Joaquin River in the early 1940s. When the dam was first completed—over sixty years ago—it seemed like a miracle. The dam gave people clean water whenever they needed it, provided water for farmers to grow crops year round, and also made electricity. Unfortunately, years later, it became obvious that the dam was causing some big problems too. Grandpa says now he is still pretty sure that the dam did more good than bad, but he is really sorry about the bad side effects of the dam. And he isn't sure how the situation can, or should, be fixed.

SIDE EFFECTS

A side effect can be good or bad. But, it is always something unintended; not the main thing that was meant to happen. For example, you could give your little brother a bath—which is a good thing. But your brother could get a lot of water on the floor of the bathroom as he gets out of the tub. And then later, he could slip on that water—which would be a bad thing. You never meant to let him get hurt. But it was a side effect of giving him a bath and the fact that he splashed water on the floor.



Katse Dam in
Lesotho, Africa.

This book is about Friant Dam. The problems it solved and the problems it created. And, it is also about a much more recent dam in Africa called Katse Dam—and the story of how that dam changed the lives of two girls living near the dam.

Today there are over 45,000 large dams all over the world. Each one of them has changed how a river flows.

And because of those changes in how the rivers flow, a lot of other things have changed too. Read about Friant Dam and Katse Dam, to get an idea about how changing one thing in a system, can change a whole lot of other things in that system at the same time.

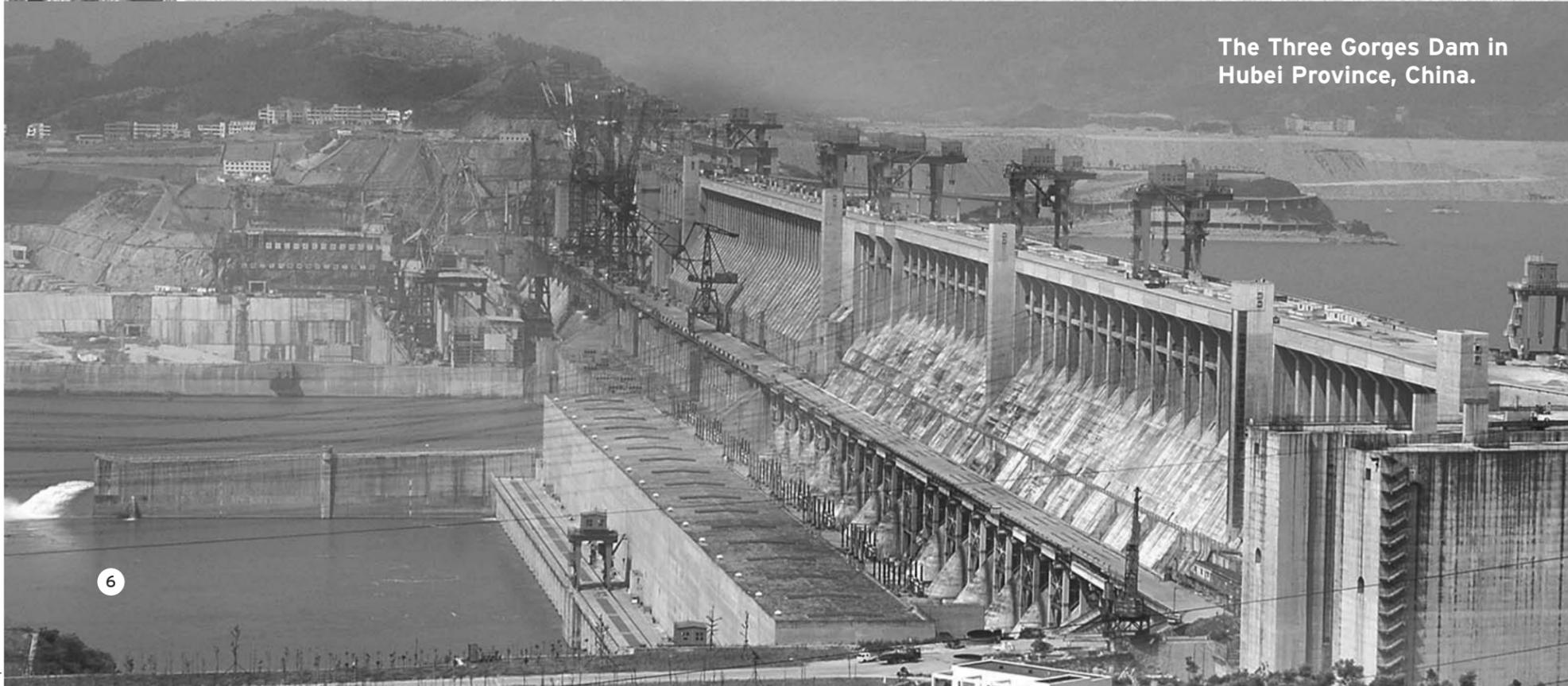


Chapter 1

Friant Dam

In the 1800s (and long before) the San Joaquin River was a huge river. It started in the Sierra Mountains and ran for approximately 350 miles before it eventually ran into the Sacramento-San Joaquin Delta and the San Francisco Bay. The area it ran through was almost a desert really. During the summer, when there was little rain the San Joaquin Valley was parched and the river was low. But in the spring—when there was more rain, and snowmelt from the mountains—the river overflowed and flooded the land around it. Farmers in the area realized they couldn't count on the river to be consistent. There were months when they didn't have enough water for their fields, and other months when floods would ruin the crops.

In the early 1900s, farmers solved the problem of too little water, by drilling wells to get water from deep under ground. (Of course, this didn't solve the problem of the river overflowing sometimes. But, at least with the wells, the farmers could get water when they needed it.) Unfortunately, after a few years the ground water started to dry up. To make things worse, in the early 1930's there were several years of drought (almost no rain) in the area. The farmers couldn't grow anything. They were going to go bankrupt and lose their farms. And there wasn't enough food for the people or the animals.



The Three Gorges Dam in
Hubei Province, China.