

RUNNING ON EMPTY

Fukuoka Faces Its Second Water Shortage In 16 Years

by Eric M. Olson

Last spring, when asked about the chance of a water shortage in Fukuoka, the city government said there was little to worry about. Mother Nature doesn't often listen to bureaucrats, however, and proceeded to throw a monkey wrench of a summer into the works. On August 4, Fukuoka was forced to ration its water for the second time in 16 years.

Raindrops Aren't Falling On My Head

Fukuoka's summer of '94 will undoubtedly go down as the city's all-time cooker. Dozens of records were set, including highest average daily temperatures for July and August (29.6, 29.8), highest one-day temperature records for July and August (36.9, 37.7), lowest monthly rainfall for July (18.5 mm/avg 257.6 mm), lowest total rainfall for June, July and August (201 mm/avg 679.7 mm), 24 straight days without rain in July... the list goes on.

The culprits in all of this were a series of high pressure fronts from the Pacific. They moved over Japan much earlier than usual and kept away the typical low pressure fronts that make up the rainy season. For the sake of comparison, the drenching we took between June and August last year was the seventh heaviest in city history. (All statistics based on measurements taken between 1890 and 1994.)

Rationing Required

Without a rainy season, Fukuoka's water supply was in serious trouble. Emergency offices were set up on July 20 to deal with the shortage and six-hour rationing began on August 4. As the drought continued and air-conditioner sales soared, the water supply plunged to 25.1% of capacity in August (avg. 66.8%, see chart below). On the first of September, rationing was increased to 12 hours. The obvious intention was to lower consumption and to ease the drain on the water supply. The water department made all statistics public and urged citizens to curtail their use of water. Fukuoka's average daily consumption for the week of July 4-10 was 468,600m³. By the week of Oct 17-23, it had dropped to 331,900m³. This 30% savings was in line with the water department's goal and on October 26, rationing was reduced to 8 hours.

Other reasons for the reduction included a favorable extended weather forecast, the cooperation of citizens in the conservation effort, decreased personal and agricultural use in winter, and a water supply at 29% of capacity. For a chance at ending the rationing completely, we'll need to hit 30%. That will require a couple of 100mm drenchings. The problem is the average rainfall for December through February is only 204.4mm.

Deja-Vu All Over Again

This is not the first time Fukuoka has experienced a drought. In 1978, spring rainfall



It could be worse: the Minamihata Dam in 1978.



The Minamihata Dam in happier times.

was minimal and the water supply was at 10% of capacity. Officials waited for a respite and on June 1, rationing began for a day. By a stroke of luck rain fell in the month, rationing was eased and Fukuoka is thought to have escaped the worst.

The summer that followed was the driest in history. The water supply fell to a dangerously low 11.0%, rationing was stayed in effect for five months. Citizens lived on water from special trucks. Finally, after 287 days of no service, the water returned to normal service.

Following that experience, the city developed a detailed manual to help deal with future water shortage. This manual includes much of the city's current emergency decision to begin rationing.

It Doesn't Come From the Sky

A big reason for the water shortage is a lack of fresh water in the area. There are three small local rivers, seven from the Chikugo River (largest, which is pumped to the city via a 25 km pipeline). While water is usually drawn from three groups, the city is currently depending mostly on river water, but has a large reserve as an emergency supply.

Perhaps it seems strange that on the coast of the Sea of Japan a city is experiencing a serious water shortage. The reason is desalination is that it's a very expensive proposition. The city is handicapped by the cost of water and is seriously considering construction of a desalination plant to handle salt water. If the government could provide the city with a desalination plant, it could provide the city with its water needs. As Fukuoka has experienced major water shortages in 16 years, rationing continues to increase and such a facility being built is a high priority.

Officials are quick to point out that water prices will not be raised in the near term shortage. The price of water has remained unchanged for five years, however, and the city's water supply is in a time when it's reasonable to expect an increase within the near future.

The availability of safe water is a serious environmental problem. The planet is roughly 75% water, but only a third of 1% of that is accessible.

In many countries, to drink from the regular water supply means to risk death. Japan is extremely fortunate to have such clean water available. Water department officials say we have to stop taking this for granted. This year, water rationing affected 11,590,000 in Japan and 2,840,000 in the U.S. Conservation habits we've learned during this shortage should be seen as a gift for a lifetime.

Water Restriction Results



Average Rainfall (in millimeters)

	May	June	July	August	September
Avg. Rainfall	144.1	256.2	257.6	165.9	175.0