| IMAGE | SOUND |
|---|---|
| | NARRATOR: |
| LOGO "MAN BUILDS MAN DESTROYS" | A series of programmes about this planet and what man is doing to it. |
| AERIAL<br>BULL RING | Man is by nature both friend and foe of his environment. In Mexico City, the roll of a rubber ball points to a problem that man has created in his search for drinking water. |
| PEOPLE (FREEZE FRAME) | |
| MAN DRINKING | You get what you pay for - an old axiom that is still true today. |
| CHILDREN | On the west coast of Africa, in Ghana, you get two things. First - pipes that bring pure water to villages for the first time. |
| WOMEN (FREEZE FRAME) | And second, a water bill at the end of each month. |
| WAVES<br>OCEAN | The Pacific Ocean on Southern California's coastline - untamed and beautiful. Some |
| WAVE (FREEZE FRAME) | see it as a shipping lane of the future - bringing fresh water in a frozen form. |
| SUN ON RIVER | The people who live in New Orleans, Louisiana have a never ending supply of drinking water - compliments of the Mississippi River. |

TANKER

The River has always been there, as both provider and garbage can.

CHEMICAL PLANT SEAGULLS

But new ingredients are now being added to the River flow, which seriously threaten the lives of all who drink.

SUNSET

SUPER - NOR ANY DROP TO DRINK

NARRATOR:

SUNSET

Water is the most common substance on earth. Without it there can be no life.

WATER

It has determined where cities grew - and how they survived. Man's success in

STREAM

managing water closely parallels his own progress.

MONTAGE

It is man's richest resource, one that he uses over and over again. One that he abuses, yet cannot exhaust.

BEACH

There is as much water on earth today as there ever was - or ever will be.

CLOUDS

And water crosses all frontiers - ignores

WINDSHIELD

all differences - falls on all of us - but not equally.

LAKE

Though the world has plenty of fresh water as a whole - less than 1% is available to us as drinking water.

WATERFALL

Most of it eludes our grasp and flows back to the oceans.

SLUMS

CHILDREN

Poor water quality is one of the greatest burdens in the developing world.

A survey by the United Nations of community water supplies in 88 developing nations finds 80% of the people exposed to sub-standard drinking water.

TRAVELLING SHOT

But even wealth cannot buy this resource. Rich countries also suffer from shortages and poor quality water. Yet many people deeply concerned about the environment consume sub-standard drinking water and seem to accept it as a fact of life. And that brings us back to California.

HIGHWAY

California is beautiful and bountifully endowed with most of natures treasures. However, one vital ingredient in short supply is good quality fresh water. Mostly it's the result of a peculiar California phenomenon - its water is; where its people aren't.

The most telling example is in Southern California where 50% of the population lives, while possessing less than 1% of the precious fluid that makes the good life possible.

RESIDENTS OF SAN DIEGO ON CAMERA

POLICE OFFICER:

"I've got three kids, two of them teenagers and they go in and take a shower and that's about 45 minutes washing their hair. So we use a lot of water. And our water up in Carlsbad, I think is real poor."

SECOND MAN:

"It's bad, the water down here. I wouldn't drink it."

WOMAN ON HORSE:

"It's terrible. You mean from the tap? It's bad!

THIRD MAN:

"It's lousy!"

FOURTH MAN:

"Well, I just don't drink. I don't like it."

SECOND WOMAN:

"Well.....it's alright."

THIRD MAN:

"It doesn't taste like water should. Too much chlorine in it at times. And it's hard."

TEENAGE GIRL:

"I don't drink too much but I know over there in the corrals they have it hitched up to a well and it's all orange and yucky!"

NARRATOR:

ARID LAND

To some residents it may seem as if it never rains in Southern California...but it does... sometimes.

Still it doesn't improve the quality of the drinking water or decrease its cost.

There are solutions to the water crisis in

Southern California and one by its sheer magnitude dwarfs anything yet produced in Hollywood or Disneyland.

ICEBERG

The mission - Bring Antarctic Icebergs to the shores of sunny California. Melt them and drink the fresh water stored inside.

ICEBERGS

Dr. John Hult V.O.

"The total global water is about 97% salt water that exists in the ocean and only something like 3% is fresh water. Of the 3% that is fresh water something like three quarters of it is in the form of ice and of that part, that is in the form of ice, about 9/10th of it exists in the Antarctic."

NARRATOR:

SCIENTISTS ON WHARF

Two senior researchers at the Rand Corporation in Santa Monica, California - John Hult and Neil Ostrander have devised a plan for delivering at least some of this vast fresh water source.

NEIL OSTRANDER ON CAMERA

OSTRANDER:

"We made a proposal to bring icebergs to California and to other parts of the world where there are arid climate conditions. We are conscious of water needs in California and in reviewing the geography of water distribution problems, where there are shortages...

ICEBERG

Ostrander V.O.

...they happen to coincide with routes which in many cases would be convenient for iceberg delivery as a source of fresh water."

ICE

ICEBERG MONTAGE

NARRATOR:

More important, the yield in fresh water from a single iceberg is more than the yearly water requirements for the city of Los Angeles. All that is needed to make this dream a reality is atomic tugs, plastic blankets, a ten month voyage, and a monster blender at the end of the line. Before that can happen however, there must be a strong public demand for better drinking water in Southern California.

DR. JOHN HULT ON CAMERA

HULT:

"For the most part I suspect that there is less detrimental environmental impact from icebergs than from the conventional way of storing water and using water that comes from rivers and so on."

NARRATOR:

SCIENTISTS WALKING ON PIER

Surprisingly the concept is far from new. Steamships towed icebergs to Peru at the turn of the century. But the work of Hult and Ostrander represents the first attempt to develop a practical plan for freeing this seemingly imprisoned source.

OCEAN

Another potential source of fresh water is an obvious one - the oceans themselves.

OCEAN LINER

All transoceanic liners carry as standard equipment, small desalting units that turn salt water to fresh, to meet the needs of passengers and crew.

AERIAL
SAN DIEGO

At San Diego, California this principle is put to use to serve a community.

TEST SITE

Here, a U.S. government facility reproduces mechanically the processes of nature.

MONTAGE
DISTILLATION
PLANT

Distillation is one of the oldest ways known of separating fresh water from a salt water solution.

Through a complex system of heat exchangers, evaporators, and condensers - the plant turns brine into a rather tasteless $H_2O$. The use of desalinated sea water as a supplementary source is already being practiced in Israel, Kuwait and other 'dry' nations.

Within this century it may become the basic source of fresh water in arid zone countries.

MANNION: V.O.

CU PRESSURE
TANKS

"The water that we are producing here is from the ocean and is, we believe, the future

source for San Diego. The water is right at our seashore and

ROBERT MANNION ON CAMERA

> we produce some four million gallons of water a day. We have produced our billionth gallon from this test facility and even though this test facility is not a production facility but mainly for the production of technical data, we are still producing one of the largest amounts of water in the United States from the ocean."

NARRATOR:

BRINE EXHAUST

Still, the cost of desalinated sea water is prohibitive - averaging 30 cents for each cubic meter, nearly ten times the cost of fresh water.

TRAVELLING SHOT

While desalination is one way of providing more drinking water, the reality is that this site and several others in the United States are being phased out ahead of schedule for budgetary reasons. Seemingly an indication that we have yet to take seriously the consequences of future drinking water shortages.

CROP DUSTING PLANE

In the Imperial Valley of California man has already demonstrated his ability to turn desert into farmland.

AERIAL GEOTHERMAL SITE

At Holtville the worlds first geothermal desalination plant may prove to be the future source and answer to California's water dilemma.

LS TEST SITE

Here secured between the floors of ancient seas lies an immense body of boiling water that waits to be brought to the surface.

PAUL CORRIGAN: V.O.

LAND GRADER

"We speak of fuel costs to run any plant whether it be power or water. Here we essentially have no fuel costs. The water is free. This is the first distillation

ENGINEERS

plant from geothermal brine - certainly of this magnitude and it certainly opens up many possibilities here in the

CRANE

Imperial Valley and throughout the world.

CORRIGAN
ATOP UNIT

Any nation with a geothermal reservoir has the potential to produce power and water."

PLANE

NARRATOR:

DAM

Some countries have all the water they need. Ghana is one of the lucky ones with the waters of Lake Volta stored behind the Akosombo Dam.

MONTAGE
GATHERING WATER

There is perhaps no single task in the developing world requiring more effort than does the fetching of water. A drudgery that usually falls to the woman.
Much of the water so painfully collected is the source of disease - but old habits are

PIPES

hard to break and new means of acquiring water even harder to accept.

CONSTRUCTION

Until a few years ago the country was plagued with a corroding system of outdated water works. Recently a joint project of the

Government and the United Nations Development Programme has provided a master plan of water supply and sewerage that should serve its citizens through the year 2000.

WATER PUMP

Water to drink - to serve half a million people. Water brought to the village directly that will end this drudgery and increase learning and building time for young people.

PYRAMID OF THE MOON

"Great towers and temples rising from the water" - thus a conquistador described the Aztec capital.

Today the temple of the moon at Teotihuacan is reminiscent of a discarded movie set. One consciously strains to hear some echo of the past.

But the Spanish destruction was quite thorough. Most of the temples are gone as is the surface water.

WATER BOYS

On the outskirts of Mexico City this tap marks the spot where the city's water supply system ends.

Those who live beyond this point must either fetch it themselves or buy water from these young businessmen.

BOY ON CART

The region is part of the city's metropolitan district. In the times of Cortes and Montezuma it served as the bed of the then, giant Lake Texcoco.

CART ENTERING VILLAGE

But drinking water like the Lake seems to have deserted most Mexicans.

PABLO FONG: V.O.

BOYS FILLING DRUM

"There's not enough water for everyone. If you don't have the water, which is the most important resource, you won't get anything. Life is the meaning for everything and water is the only thing that can make it come true.

PABLO FONG ON CAMERA

PABLO FONG:

Unfortunately the people that have enough money to pay for it, the ones that live in nice neighborhoods, they really have plenty of water. But the other problem is that most of the citizens do not use the water adequately. We have a waste society like in many other countries."

NARRATOR:

WATER GUSHING FROM WELL

Strangely enough this village has plenty of water - beneath the surface, but it will be some time before it is available to the people who live here. Now it will be taken to quench the thirst of Mexico City.

AERIAL MEXICO CITY

The vibrant metropolis that is Mexico City is the fastest growing capital in the Americas.

It comes equipped with a junior sized Empire State Building and major sized environmental problems.

TRAFFIC

PEOPLE

It has a population of ten million - double that of a decade ago - and it grows at the rate of 300,000 annually.

CESAR BUENROSTRO ON CAMERA

BUENROSTRO:

"Unfortunately, we think that Mexico City has been growing too rapidly. In 1973 there are ten million inhabitants in the valley and of those eight million inhabitants live in the metropolitan area."

NARRATOR:

BUENROSTRO IN CAR

Cesar Buenrostro is Mexico City's water commissioner and is charged with the responsibility of providing more water to its citizens. In order to meet the demands of the rapidly growing city - underground water sources in outlying areas must be tapped.

DRILLING RIG

BUENROSTRO AT WELL

A series of 29 new wells ring the metropolitan district. Though these points are within the Valley, no more wells can be drilled within the city limits.

WELL GUSHING WATER

CESAR BUENROSTRO IN CAR ON CAMERA

BUENROSTRO:

"Because within the metropolitan area many wells have been drilled before and now the city has been sinking because of that action".

NARRATOR:

AERIAL
MEXICO CITY
DOWNTOWN

As Mexico City builds higher and higher, it also sinks lower! The subsoil is mostly volcanic ash and for centuries water has been pumpwed from the groundwater reservoir. Like a sponge the soil has been compressed - unlike a sponge the soil has no resiliency.

PALACE OF FINE ARTS

The Palace of Fine Arts is an example of how much damage is caused by the search for water. A ball placed on the sidewalk rolls to the building - a structure now some ten feet below its original level.

TILTING
BUILDINGS

CATHEDRAL

Until a few years ago some parts of the City were sinking at a rate of twenty inches a year. With pumping now forbidden, the figure has reduced to three inches - and the danger has lessened.

CESAR BULNROSTRO
WITH PLANS

But the siphoning off of fresh water is not the only hazard.
For centuries the city has been the victim of floods.

INTERIOR
HELICOPTER CABIN

At an elevation of 7500 feet, Mexico City rests in a basin that receives drainage from many mountain rivers. Too often the fresh water supply has been contaminated by ruptured sewerage lines.

AERIAL
DRAINAGE CHANNEL

The Aztecs were the first to meet the challenge and notched drainage channels through the mountains.

CLOSE VIEW
CHANNEL

These are still in use today carrying sewerage to agricultural areas to the north.

MODERN CANAL

New canals are also under construction based on Aztec plans and to provide this basin with a drain, a new gravity feed tunnel is being spiralled through mountain rock.

AERIAL
CANAL

Mexico City is far from a solution to all of its growing pains, but for the moment, good drinking water for its citizens is a practical reality.

CANAL ST.

New Orleans, Louisiana, a historic American city, rich in its mixture of old and new.

TROLLEY SEQ.

Though Desire has been replaced with speed, a streetcar named St. Charles still glides past mansions and green oaks of the nineteenth century.

BOURBON ST.

While on Bourbon Street the sounds of Dixieland and carriage carts are intertwined with bumps and grinds and American Pie.

ELEVATOR SHOT

And lets not forget the American Institution called urban renewal that spawns glass buildings and domed stadiums.

RIVER FROM BRIDGE

But then some things never change - like the Mississippi River. It has made New Orleans the second richest port in the country and still provides its citizens with all the water they drink.

RIVER SCENES

For a stretch of 250 miles of the lower Mississippi, the river serves one and a half million people with drinking water. Some forty water systems along the way purify, distribute and discharge back again used water.
It is conceivable that a glass of water drawn in New Orleans has already entered and exited several homes up river.

PURIFICATION PLANT

Renewed water of the Mississippi presents no health problem. Like many large cities in the world New Orleans has an old yet quite thorough purification system.
But now ingredients are being added to the river that reduce the water quality.

AVONDALE SHIPYARD

Today the delta country thrives on industry.
This "American Ruhr" has come of age.

CHEMICAL PLANT

The river plays host to the greatest names in American industry.
From Baton Rouge to New Orleans 60 industrial plants discharge wastes into the waters of the Mississippi. Some ingredients cannot be removed and pose a threat to the well being of the consumer.

PAN OF RIVER

The U.S. Environmental Protection Agency has made strong recommendations that would improve municipal purification methods and more importantly halt industry's practice of discharging untreated wastes into the Mississippi River and it didn't happen as a result of a public outcry for better drinking water.

MONTAGE WATER SCENES

The problems of New Orleans, Mexico and Southern California are quite different but do reflect what should be a growing concern for world-wide water resources. Water will in time probably become the major resource shortage for the world. Long before he exhausts his food supply - man will die of thirst. There is no substitute for water and though it truly is everywhere we are fast approaching a place in time when there may be plenty of water but not a drop to drink.

SUNSET

SUPER CLOSING CREDITS