

CHINA ACTS TO STOP MARCH OF THE DESERT

Much more needs to be done to contain desertification which affects more than 50 million Chinese farmers and herdsmen, according to officials. But its success has gained international attention, particularly from nations facing the same problem. by Wang Qinghua.

Although China has made notable progress, desertification continues to threaten large tracts of its precious cropland.

Deserts and desertification-prone areas in China cover 1.49 million square kilometers, or 15.5 per cent of its total land mass. About half the size of India, they lie mostly in Xinjiang in the Northwest and Inner Mongolia in the North.

According to Zhu Zhenda, director of the Desert Research Institute in Lanzhou, capital of Gansu province in Northwest China, deserts are expanding by 1,500 kilometers a year, especially in Eastern Inner Mongolia and the adjoining Hebei province.

"Desertification affects more than 50 million Chinese farmers and herdsmen," Dr. Zhu said.

To control the push of the deserts, China in the past decade has built a dozen sand-control stations and hundreds of sand-control demonstration districts, which have altered the appearances of many areas.

The Lanzhou Institute said land erosion has been halted in about 10 per cent of the country's 334,000 square kilometers of desert-ification-prone land; in another 12 per cent, soil erosion has been eased.

The Hexi Corridor on the silk road in Gansu province is an example of successful control. To fight the southward encroachment of the Badain Jaran and Tengger deserts—third and fourth largest in China—local residents have built a 1,200-kilometer-long forest belt, bringing 184,000 hectares of shifting sand under

control and preventing farmland and 1,400 villages from being buried by sand. As a result, grain output in the area has increased by an average of 8 per cent annually over the past decade.

Furthermore, farmers there have fertilised 27,000 hectares of barren land, growing wheat, corn, sunflowers, vegetables, melons and other crops. The per hectare output of wheat now ranges from six to eight tons a year. Numerous apple and pear orchards and vineyards now dot the vast area. Along the length of the corridor, sand has stopped advancing while cropland at the edge of the deserts has expanded, in some areas from one to five kilometers.

Measures used the corridor differ according to conditions. Where water is available, windbreak forests are planted. In dry areas, windbreak walls made of clay, 50 centimetres high and 20 centimetres wide, built on sand dunes at one-meter intervals.

Plants that grow on deserts (arenaceous shrubs), such as *salsola* (*Holoxylon*

ammodendron) and the narrow-leaved oleaster (*Elaeagnus angustifolia*), are planted between the walls. There shrubs take root in three to five years, fixing the sand dunes," Dr. Zhu said.

Another success story is the sand-control project at Shapotou on the southern fringes of the Tengger Desert on the border of Inner Mongolia and Gansu province.

There trains have run without interruption for 32 years on a 45 kilometer section of the Lanzhou-Shapotou railway. Because of this project built with plant stalks, the desert has been prevented from burying the railway, and oases have appeared along this transport artery in northwest China.

Techniques used in the Shapotou project are simple. First, several rows of wood piles one metre apart are erected two metres above ground on the north side of the designated area where wind threatens. Then, corn stalks or tree twigs are tied between the piles, forming barriers against winds and advancing sand dunes.

Then south these barriers,

thousands of one-square-metre rectangles are created, each bounded by a perimeter of wheat stalks. From the air the cover of woven straw on both sides of the railway resembles a huge chessboard.

Finally, within each of the square-metre spaces, one arenaceous shrub is planted. Upon maturing, the shrub replaces the wheat stalks and fixes the sand permanently.

When travellers pass through Shapotou by train, they find, against a yellow sea of sand dunes, grass and shrubs growing on both sides of the railroad.

A network of straw barriers, extending 700 metres from north to south and 16 kilometres from east to west, protects the greenery.

An attraction to sand-control experts at home and abroad the Shapotou project has been visited by more than 600 experts from 30 countries since 1978.

They have given high praise. "The project is striking and seems to work," says Dr. David Kcar, member of the U N Advisory Committee on Science and Technology for

development. He visited Shapotou last June.

Even as they fight against it, scientists know the causes of the problem. "The main cause of the rapid expansion of deserts in China is indiscriminate felling of trees and shrubs for firewood, excessive grazing, and large-scale reclamation of sandy pastureland in the past decades," Dr. Zhu said.

"What merits attention is that all these economic activities have resulted from sharp population growth, which has increased pressure on land resources."

An example is the transitional region from farming to grazing between Inner Mongolia and Shanxi, Hebei and Liaoning provinces. Population growth in this region averages 3.08 per cent a year. As a result, farmers are forced to reclaim pastureland for grain production even as herdsmen expand their flocks of sheep. Since the 1950s the per sheep acreage of grassland has declined from 3.3 hectares to the current less than one hectare.

One measure to curb the expansion of deserts is to ration land use," Dr. Zhu said. "In this transitional region, farmland, pastureland and forests should respectively account for one-third of the total land area."

Because of China's success, international organisations, like the U N Environment Program and the U N Centre for Science and Technology Development, have run classes and seminars in China since 1973.

—Depthnews Features.

Wong expects to be able to create as many as 10000 to 100000 electrons per cubic centimetre. He will monitor changes in the ozone distribution using a remote sensing instrument known as a lidar (laser radar). As yet, this device has been used only for detecting ozone. But, in theory, he should be able to detect other molecules and ions by tuning the laser to the molecule's characteristic absorption frequency and monitoring the reflection. Wong hopes to use the technique to also monitor numbers of chlorine atoms and ions high in the Earth's upper atmosphere.

Wong has already begun to test his ideas by building a large chambering his laboratory to simulate certain processes high in the atmosphere.

steady state, these electrons are constantly recombining with nearby positive ions.

Wong intends to transmit radio waves at the so-called electron-cyclotron frequency. This is the frequency at which electrons absorb energy most efficiently. The more energy the electrons absorb, Wong believes, the more difficult it will be for them to recombine with nearby positive ions.

Also, as the electrons gain more energy, they will collide more frequently with neutral atoms. This will ionise the neutral atoms and so free yet more electrons which chlorine atoms can then pick up.

Radio waves might safeguard the ozone layer

WE may be able greatly to slow the rate at which we are destroying the ozone layer by electrically charging the atmosphere, according to a physicist in California. Alfred Wong, of the University of California, Los Angeles, suggests using radio waves to produce negative chlorine ions in the stratosphere. Chlorine ions, unlike their neutral counterparts, do not destroy ozone.

Scientists believe that chlorine atoms are the main cause of ozone destruction in the upper atmosphere. They build up when ultraviolet light from the Sun breaks down certain

man-made compounds, principally chlorofluorocarbons (CFCs). Chlorine atoms, which are electrically neutral, catalyse a destructive reaction between ozone molecules which is so effective that one atom can eventually destroy a hundred thousand ozone molecules. A chlorine atom, however, will readily pick up an electron to form a stable ion.

Wong believes that he can generate radio waves from the ground which will transfer en-

ergy to free electrons high in the atmosphere. In field trials which he is planning, he hopes to affect a region between 50 and 80 kilometers above the Earth's surface. This is somewhat above the height where the ozone layer is most badly damaged.

One reason Wong has selected this region for field trials is that it already contains a small number of free electrons which are produced when ultraviolet light from the Sun ionizes neutral atoms. In the

Gulf crisis

Exodus of planes to Iran to save Saddam's air force?

RIYADH, Feb 12: The nearly 150 Iraqi aircraft which have fled to Iran were flown by junior pilots in an apparently organized exodus to save the cream of Saddam Hussein's Air Force, US military officers said on Monday, reports AFP.

The officers, who requested anonymity, largely dismissed any potential threat from the 121 Iraqi jet fighters and 26 transport aircraft flown to Iran since the war began on January 17.

One officer, asked by a reporter about the possibility of a massive air strike by the Iraqi warplanes from Iran, laughed off such a scenario.

"A one-time kamikaze strike?" he said. "You give the Iraqi air force guys a hell of a lot more credit than I do. They just haven't shown that kind of gumption so far."

The US officer said the dash to safety by the Iraqi warplanes, including many "high-value" Mirage F-1s, Mig-29s and Mig-25s, did not appear to be a large-scale defection. "I've never really felt like it was a defection. It was a planned sort of thing," he said. "It's our contention that he (Mr. Hussein) is moving the aircraft there to preserve his fleet for whatever regime survives after the war."

The Iraqi air force had "around 600" planes at the start of the war, the officer said. US military officials have said that 36 fixed-wing planes have been downed in dogfights and more than 100 were likely destroyed in hardened concrete shelters.

The officer described any potential threat from the Iraqi planes as "minimal", for political and military reasons but also because they do not appear to be receiving the delicate maintenance they require. Iran has declared itself neutral in the war and has said the Iraqi planes would remain grounded during the conflict.

But the officer said US forces would remain on alert, despite the Iranian pledge. "There's always a threat when you've got combat aircraft in a country that's never been known to be particularly friendly to us on the flank of

our fleet in the Persian Gulf," he said.

"I would say that the threat is there but it's certainly not one at the same level that we would assume if the Iranians were openly cooperating with the Iraqis," he said.

The officer said Tehran "may have been a little surprised at the large numbers of (Iraqi aircraft) they're getting." He said "there's been a wide, wide dispersal" of the Iraqi planes in Iran, in the east, west and north. "They're all over Iran, everywhere."

150 Iraqi planes land in Iran?

VIENNA, Feb 12: Austria's Deputy Parliamentary Chairman said a visiting Iranian delegation told him on Monday around 150 Iraqi planes had landed in Iran since the Gulf war began, according to the local APA news agency, reports Reuters.

Iran's Foreign Minister Ali Akbar Velayati said on Sunday only about 22 Iraqi planes had flown to Iran, but the allies had 147 Iraqi aircraft have fled over Iran's border during the war.

"(Deputy Chairman Robert) Lichal said the Iranian delegation told him there were some 150 Iraqi planes in Iran," APA reported.

The delegation said many of the planes signalled they were civilian aircraft and were forced to land by the Iranian Air Force, the agency quoted Lichal as saying.

Velayati said on Sunday Tehran was determined to ground the planes until hostilities ceased.

APA was reporting on a meeting in Vienna between delegations of Iranian and Austrian Parliamentarians.

Quoting parliamentary sources, it said the Iranians outlined Tehran's proposals for a settlement of the Gulf crisis including an Iraqi withdrawal from Kuwait and the withdrawal of foreign forces from the Gulf.

"It's almost as if these aircraft flew into bases that the Iranians didn't really want them to go to and now they're dispersing them," he said.

Some Iraqi planes are in Iranian shelters "but by and large they're sitting out on the tarmac on the sides of runways," he said, adding that some have been moved from one base to another, apparently by Iraqi pilots.

"It's almost as if 12 aircraft came into a base, the Iranians decided we really can't keep more than four here, send these other six over here, these other two over here, let's spread it out a little bit," he said.

The officer also said "we don't see him (Mr. Hussein) sending his best pilots out with these aircraft."

"It seems to us that he's taking his most junior pilots to get these aircraft out," he said.

"He's keeping his best pilots for may be that surge once the ground war begins, may be he's going to try to interdict one big major Allied air strike to make a point before he decides to call it quits, who knows?" he said.

The officer said a number of indications pointed to inexperienced Iraqi pilots flying the planes to Iran.

"There's a variety of things that point to this," he said. "Everything from parking them on lamp poles to slipping them upside down on streets. "He cracked an inordinate number of them up bringing them into Iran," he said.

"There are a couple of instances where we shot these guys down when they were going low and fast and they definitely had to know they had been locked on (by US warplanes) and they didn't go into their proper evasive tactics," he said.

The officer said the remaining "several hundred" planes in the Iraqi Air Force were being moved around the Iraqi coun-

tryside like a "shell game". He also said the flight to North Africa by several Iraqi

passenger planes appeared to be an attempt to save the commercial fleet.



WEST BANK: A Palestinian woman expresses her anger at Iraqi President Saddam Hussein the day after an Iraqi Scud missile exploded near her village in the occupied West Bank. —AFP/UNB photo

US forces hunt Iraqi spies in no-man's land

NORTHERN SAUDI ARABIA, Feb 12: In the "no-man's land" of northern Saudi Arabia, US forces hunt Iraqi patrols that slip almost nightly across the border to probe the strengths and weaknesses of Allied forces, reports Reuters.

US officials say the Iraqis probe as deeply as they can into the risk of drawing fire.

The Iraqi patrols want to plan a route for an effective offensive of their own and see how close their enemy is to launching a ground attack, the officials say.

The US army's 82nd Airborne Division has been despatching ambush patrols to capture Iraqis who may shed light on their defences and

war plans. "They (the Iraqis) need to know the best way into here and we need to deny them the ability to (carry out) reconnaissance. Ours is a counter-reconnaissance battle," said Major Ralph d'Eloussa, an operations officer with the 82nd.

The Iraqi patrols, usually numbering no more than two dozen, travel in cargo trucks at night.

Last week they ambushed a Saudi patrol and wounded three soldiers before their own officer was killed.

On Friday night, surprised Iraqi and US patrols came within 65 metres of each other and exchanged anti-tank, machine gun and grenade fire. No one was thought to have been

Wise Forestry to Slow Down Global Warming

By Linda Bolide

Forests remain the most effective land-based ecosystem for absorbing carbon dioxide from the atmosphere.

They should be managed in a way which gives due consideration to this unique role in the global carbon cycle.

Experts point out that climate change in the future puts great emphasis on the need to limit carbon dioxide emissions by forest destruction and burning.

Carbon dioxide has been identified as one of the gases which are accumulating in the atmosphere and causing a climate change, primarily a rise in global temperature. While there are yet no definitive data on the effects of climate change, scientists predict that many life forms on Earth will be drastically affected.

A report by the Expert Consultation on Forestry and Cli-

mate Change convened by the United Nations Food and Agriculture Organisation (FAO) warns that forests are likely to be major victims as well of the impending climate change.

Forests are also one of the causes of increased carbon dioxide emissions which contribute to climate change. Regardless of the amount of emissions contributed by forest destruction, experts agree that predictions of impending climate change have introduced a new dimension to the threat to our forests.

They point out that in the past forests have "migrated" as climates shifted. This was made possible because, in general, climates changed slowly enough to allow species migration and adaptation. "Now there is a threat of change so rapid that species migration may not keep pace, with the consequent potential for damage or destruction of vast areas of present forests and the possible loss of species," the FAO experts report says.

As it is, there are already severe worldwide problems which constrain the management and use of forest resources. The effects of climate change still remain largely unknown, they strongly suggest that some amount of preparation for these projected developments be undertaken.

It could... be considered unwise to overreact to these unknown potential changes in ways that could be expensive and futile. Some reaction, however, is imperative due to the high risks involved," the experts said.

It is recommended, they said, that changes in present forestry policies and technologies be instituted that would contribute to the relief of the problems caused by a possible climate change. At the same time, changes should be beneficial without global climate change.

It is thus important to keep the problems in perspective and to seek cures primarily at the source of the causes, namely by reducing the emission of greenhouse gases into the atmosphere.

The experts identified three objectives which they considered are directly related to forestry and climate change. The objectives which the experts said are important in de-

termining forestry policy, are: "The need to protect existing forests from decline and destruction caused by climate change or by the socio-economic pressures today and new pressures caused by climate change."

The role of forest ecosystems in the mitigation of climate change, primarily through their potential to fix carbon dioxide in wood, wood products, forest soils and oceanic sediments.

The experts said the concept that unmanaged forest ecosystems are in equilibrium or in balance has been challenged. The role of forest ecosystems in transferring carbon from the atmosphere to the terrestrial and aquatic systems over long time scales has been recognised.

Afforestation and appropriate forest management and wood end-use offer potential

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As it is, there are already severe worldwide problems which constrain the management and use of forest re-

sources. Among the problems identified by the FAO report are the loss of genetic resources; the shortage of food and fibre; the destruction of soils and watersheds leading to erosion and flooding; the disruption of employment and trade, following the loss of forest resources; the loss of cultural values; and changes in local climates.

According to the experts, "The ongoing destruction and degradation of forests is partly a result of the industrial revolution with its increasing demands for resources and its emission of toxic waste products, partly the result of a burgeoning population and its need for fuel, food and fibre and land for alternative uses, and partly the result of improper management of the forest and land resources."

While the experts advise against overreaction, inasmuch

for considerable increases in the amount and rate of carbon dioxide absorption from the atmosphere by forests, the experts said.

The necessity to ensure adaptation of forestry policies and of the technical solutions used in order to achieve the twin objectives of protection and mitigation.

In many instances traditional forestry policies are already achieving sustainable land use. In other regions integrated systems of land uses such as agro-forestry or urban forestry can be introduced.

But forest management techniques have yet to be widely applied in tropical forests although they are already in effect over large areas of temperate and boreal forests.

In those tropical areas in which management is practised, it has so far been directed mainly towards the production of wood from a very few species. Only recently has the principle of multiple use of forest management, aimed at the sustainable provision of a wide range of goods, been introduced as an option.

Security Council urged to review action in Gulf

NEW DELHI, Feb 12: India has called on the United Nations Security Council to review military action in the Gulf war to ensure that the US-led multinational forces' operations are in strict conformity with its resolution of securing Iraqi withdrawal from Kuwait, reports Xinhua.

An Eye-witness Account

Saudis feel safe in Riyadh

From Guo Xiaoyong of Xinhua

DAMASCUS, Feb 12: What about the situation in Riyadh, the capital of Saudi Arabia, three weeks after the Gulf war broke out on January 17? A friend in Riyadh offered me some clues when I rang him Friday from Damascus before my departure for Saudi Arabia and Iraq.

After two-week tension caused by the outbreak of war, situation in Riyadh has recently calmed down and people there feel safer now than at the beginning of the war.

The "Scud" missile, which reportedly has the capability of carrying chemical weapons, had frightened the city. Iraq has so far fired more than 10 "Scud" missiles with conventional warheads targeting Riyadh. But most of them were intercepted by US "Patriot" anti-aircraft missiles. Official statistics showed that only three "Scud" missiles caused casualties, leaving over 50 injuries and one death.

There was an obvious increase of traffic in the street. Most of shops did business usual except shortening service time. Market supply was so abundant that you can buy whatever daily consumer goods that you desired.

Citizens showed a universal concern over the development of the Gulf war and this led to the selling out of short-wave radios.

People once rushed to buy food, drinks, and especially water when a large quantity of oil was spilled in the Gulf region. Situation changed much better now. Prices rose a bit, but not high enough to cause any great fear and instability.

Although some of the rich, non-jobholders and most of foreigners had gone abroad with fortunes and families, the government urged public offices to keep running.

Every citizen had a gas mask provided by the government in case of chemical weapon attacks by Iraq. Doors and windows of buildings were usually sealed with sticky tapes. Only after days of visiting many shops could my friend finally buy a package of

"precious" tapes. Measures had been taken to reinforce security. More police patrolled in the streets and all cars to or from Riyadh must be examined. For example, my friend was repeatedly stopped and examined in a recent business tour to Jeddah, a coastal city in western Saudi Arabia.

There were three flights from Riyadh to Jeddah which became a transfer city for many international airliners flying to Europe or some Arab countries. However, many passengers from other cities were detained there due to irregular flights and difficulties to re-servise a seat.

My friend said that Saudis showed a widespread support to their government's policies to defend their motherland and to free Kuwait and that they sincerely hope an earlier end of the Gulf war.

Saddam to last 3 yrs: Arafat

PARIS, Feb 12: PLO leader Yasser Arafat says Iraqi President Saddam Hussein can hold out for three years against US-led forces in the Gulf, reports Reuters.

Arafat said in an interview published in the Paris Daily La Croix Monday that the war would spread across the Middle East "and will be a veritable disaster for the whole world."

"The West said at the start he (Saddam) would last three days. He's already into his fourth week and I believe his resistance will last at least three years," he said.

The PLO backs Iraq against the coalition of 28 countries fighting to expel it from Kuwait.

The Palestine Liberation Organisation leader, speaking at his headquarters in Tunis, said Saddam's resistance could be compared to PLO opposition to Israeli attacks in Lebanon in 1982.

With my faith and will power I held out for three months... It's the same thing today for Saddam Hussein," he added.