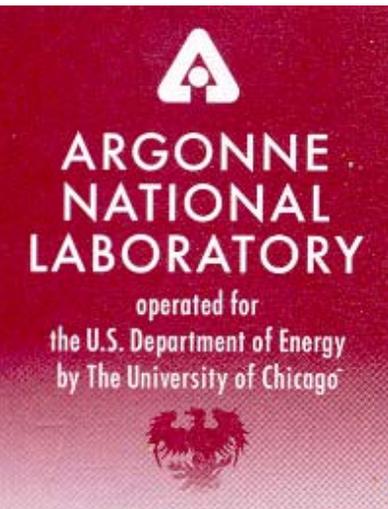


# The Politics of Global Change...

Jeff Gaffney

Argonne National Laboratory



SO WHY DO FOLKS  
HAVE PROBLEMS  
ACCEPTING GLOBAL  
CHANGE...

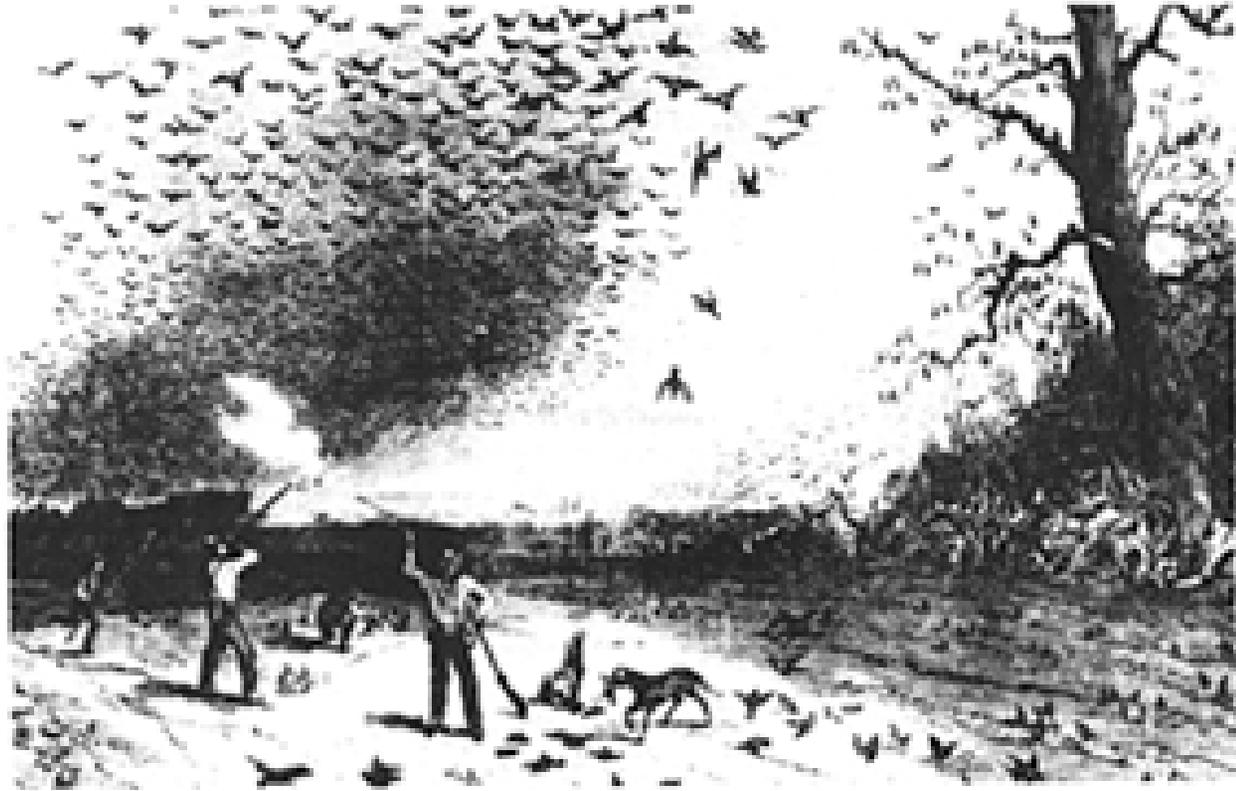
HARD FOR FOLKS TO  
IMAGINE  
CONSEQUENCES ON  
GLOBAL SCALES



# Passenger Pigeon

(*Ectopistes migratorius*)

Probably Once The Most Numerous Bird on Earth--  
It Is Now Extinct





## American Bison

Until the 1900s, Bison (American Buffalo) numbers ranged from 30 to 60 million across North America. Then unregulated killing for sport reduced their population to a about 1,500. Today they are once again thriving on public lands and private reserves across the continent.



## **MOSES MAIMONIDES – 1135-1204**

“Comparing the air of cities to the air of deserts and arid lands is like comparing waters that are befouled and turbid to waters that are fine and pure. In the city, because of the height of its buildings, the narrowness of its streets, and all that pours forth from its inhabitants and their superfluities... the air becomes stagnant, turbid, thick, misty, and foggy... If there is no choice in this matter, for we have grown up in the cities and have become accustomed to them, you should... select from the cities one of open horizons... endeavor at least to dwell at the outskirts of the city...



**John Evelyn, Esquire (1620-1706)**

“.... This horrid Smoake which obscures our Church and makes our Palaces look old, which fouls our Cloth and corrupts the Waters, so as the very Rain, and refreshing Dews which fall in the several seasons, precipitate to impure vapour, which, with its black and tenacious quality, spots and contaminates whatever is exposed to it... it is evident to every one who looks on the yearly Bill of Mortality, that near half the children that are born in London die under two years of age.

Note: A child born in a Country Village had an even chance of living 40 years.

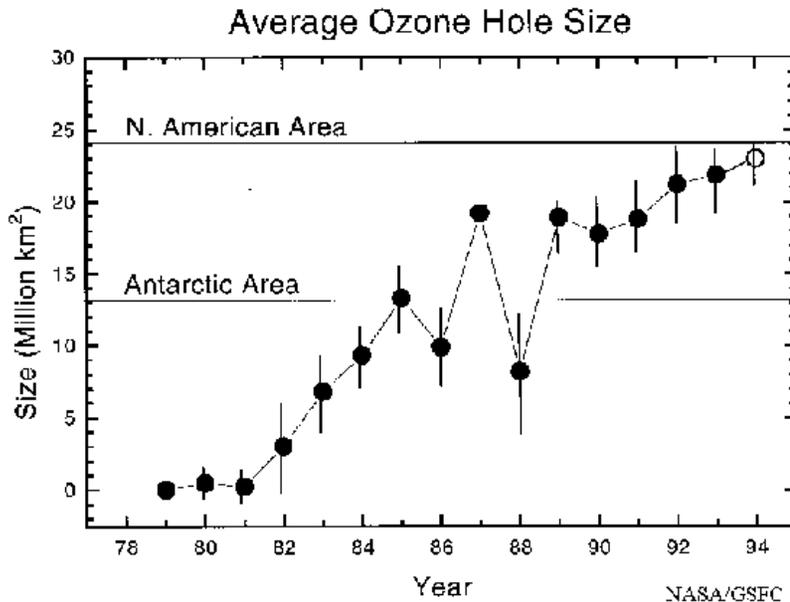
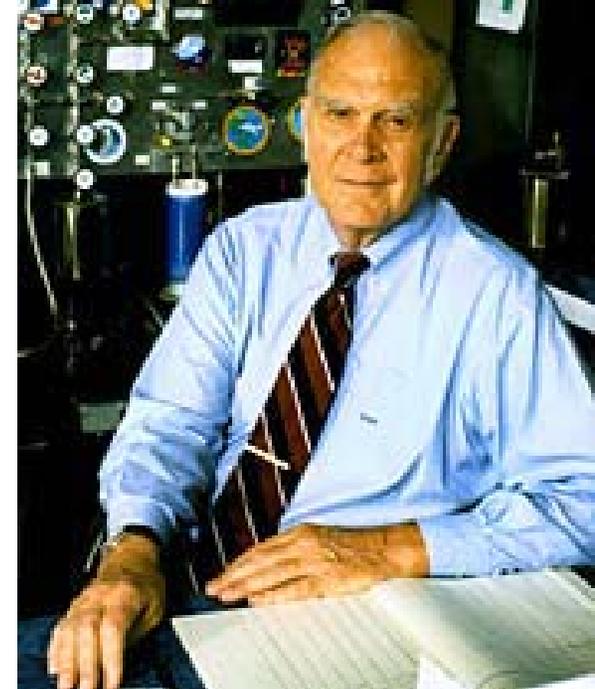


1974 Science

CFC's Could Impact  
Stratospheric Ozone  
Levels

Mario Molina

F. Sherwood Rowland



Antarctic Ozone Holes

Seen – 1985

Montreal Protocol

1987 – 1990 - 1992

## Phase-out Schedules of the Montreal Protocol

	Developed Countries	Developing Countries
<b>Chlorofluorocarbons (CFCs)</b>	Phased out end of 1995	Total phase out by 2010
<b>Halons</b>	Phased out end of 1993	Total phase out by 2010
<b>Carbon tetrachloride</b>	Phased out end of 1995	Total phase out by 2010
<b>Methyl chloroform</b>	Phased out end of 1995	Total phase out by 2015
<b>Hydrochlorofluorocarbons (HCFCs)</b>	Freeze from beginning of 1996 35% reduction by 2004 65% reduction by 2010 90% reduction by 2015 Total phase out by 2020	Freeze in 2016 at 2015 base level Total phase out by 2040
<b>Hydrobromofluorocarbons (HBFCs)</b>	Phased out end of 1995	Phased out end of 1995
<b>Methyl bromide</b>	Freeze in 1995 at 1991 base level 25% reduction by 1999 50% reduction by 2001 70% reduction by 2000 Total phase out by 2005	Freeze in 2002 at average 1995-1998 base level 20% reduction by 2005 Total phase out by 2015

So Final Phase Out is 2020..

Lifetimes of CFCs 50-100 years

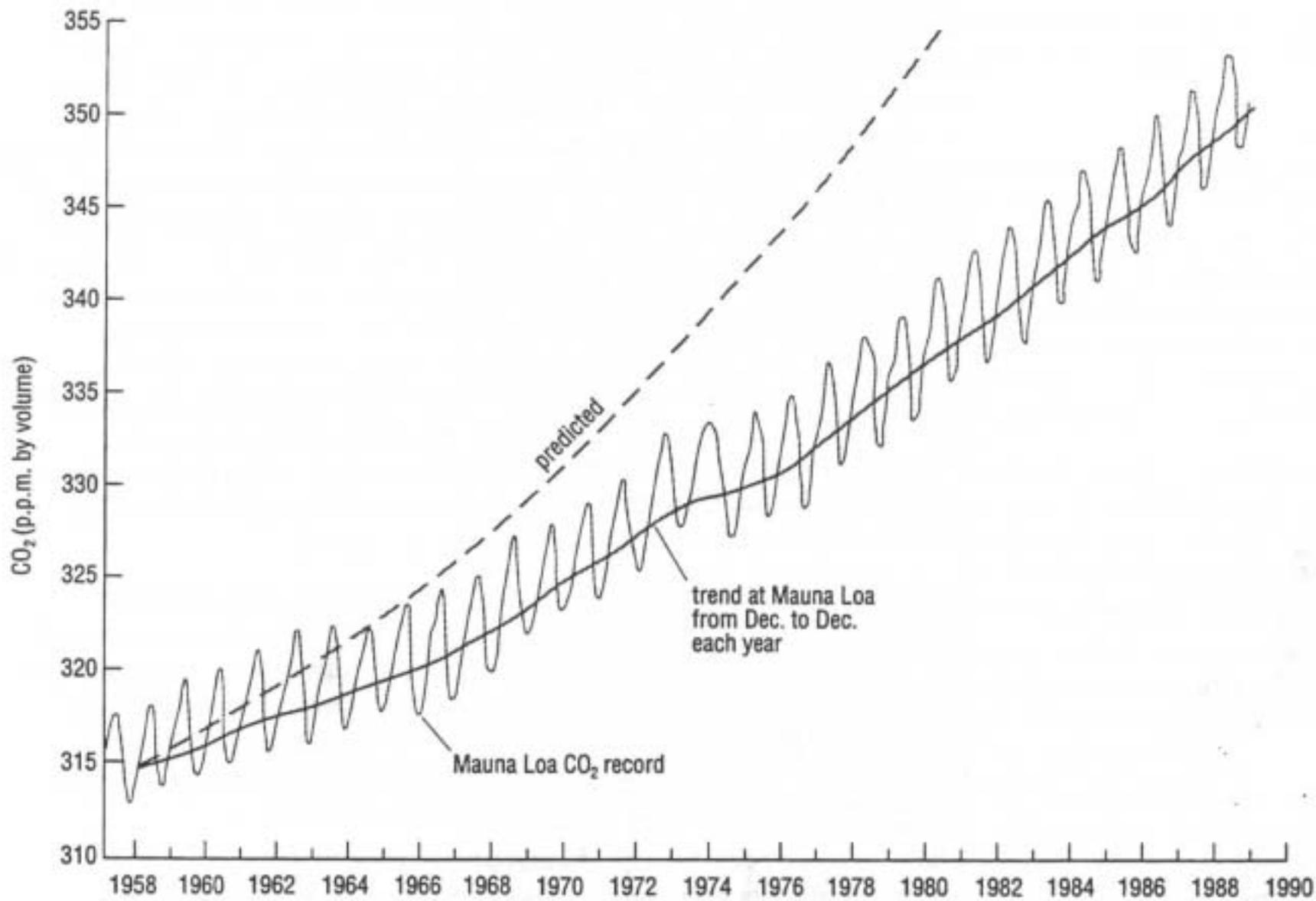
1.0 ....0.5 (50 yrs)...0.25 (100 yrs)...0.125 (150yrs).. 0.063  
(200yrs)..

Even when we enact controls.. Some Actions will be impacted us for a long time.

Carbon dioxide – Lifetime 100s of years.

CFC's Were Relatively EASY..

LESS OF AN ECONOMIC IMPACT AND  
INFRASTRUCTURE TO DEAL WITH..



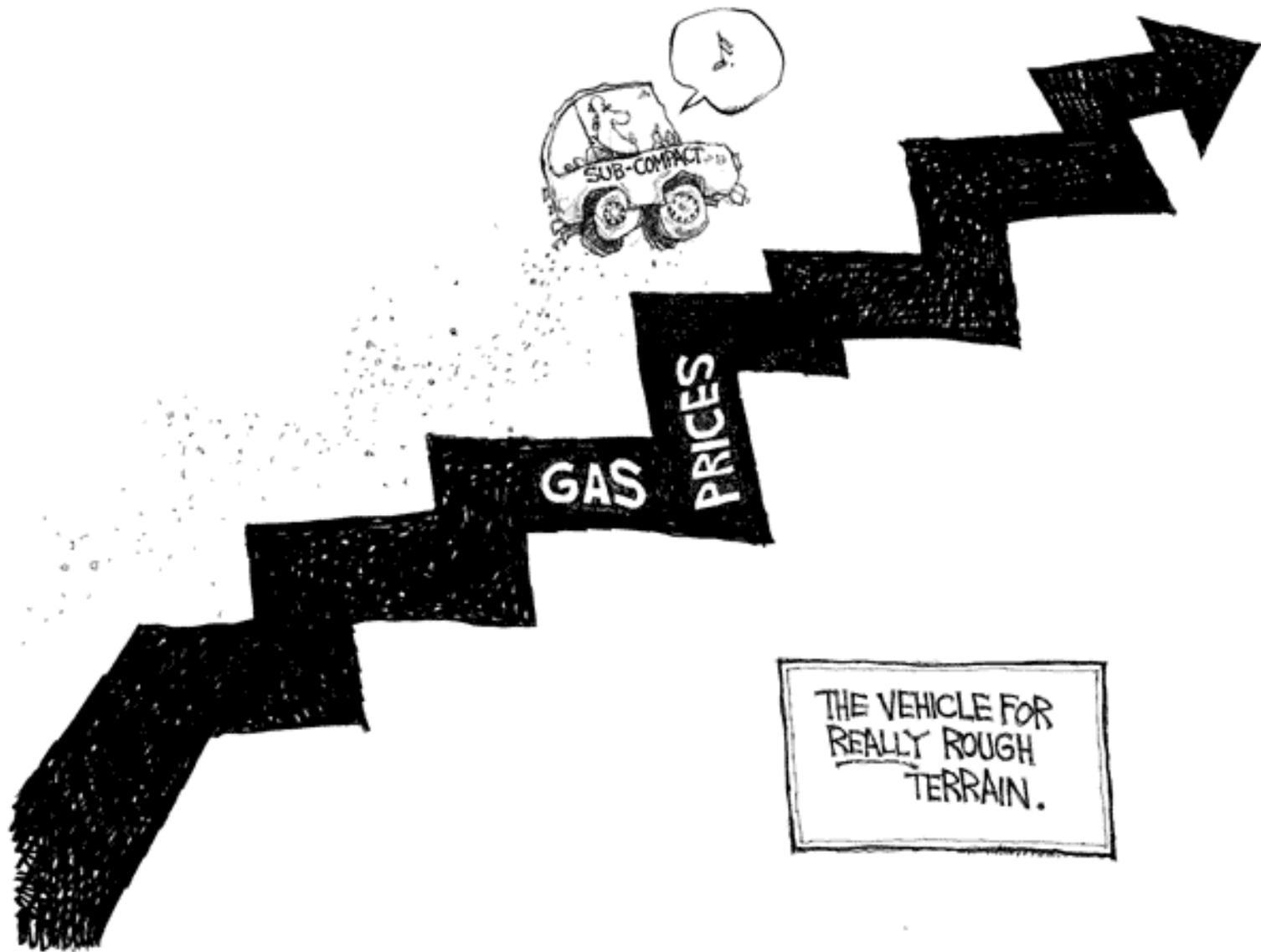
(b)



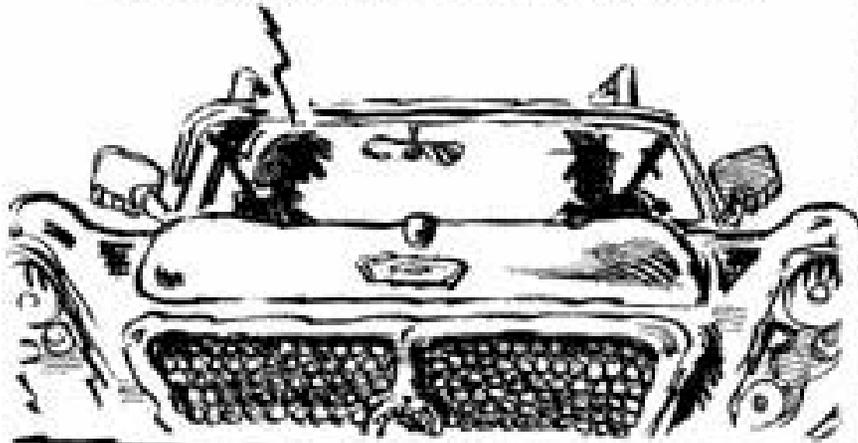
"What? US worry?"



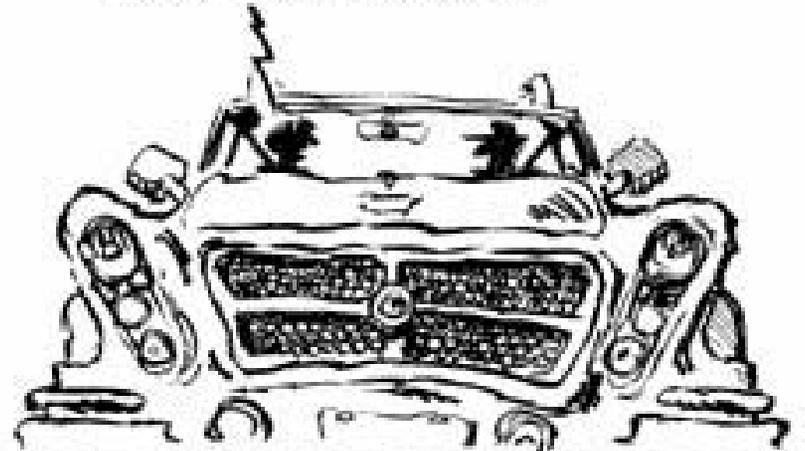
“And this little warning light flashes when the outside air becomes too polluted to breathe.”



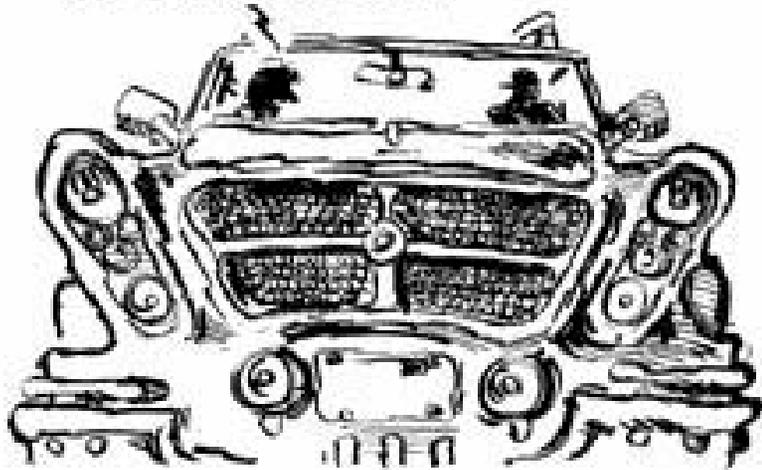
SEE, I TOLD YOU BUYING THIS SUV  
WOULD BE AN EXCELLENT INVESTMENT...



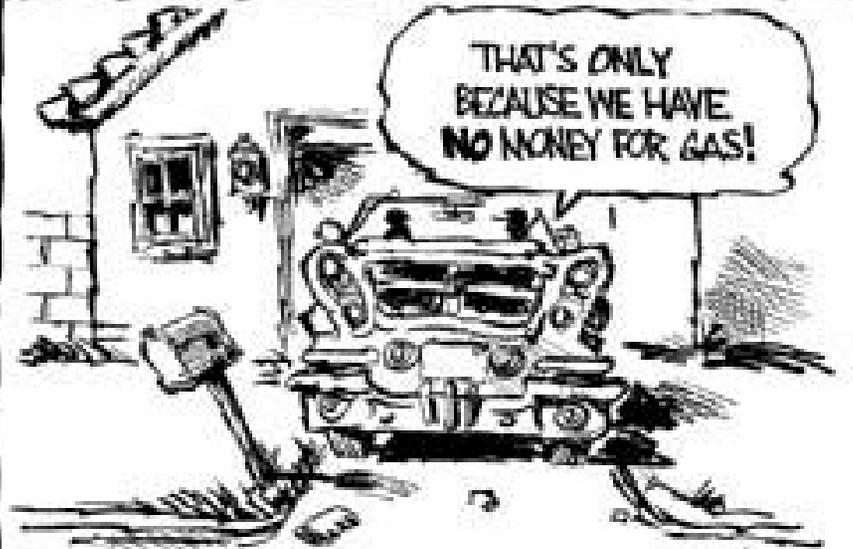
WE NOW HAVE NO CONCERNS  
ABOUT LOUSY ROADS ...



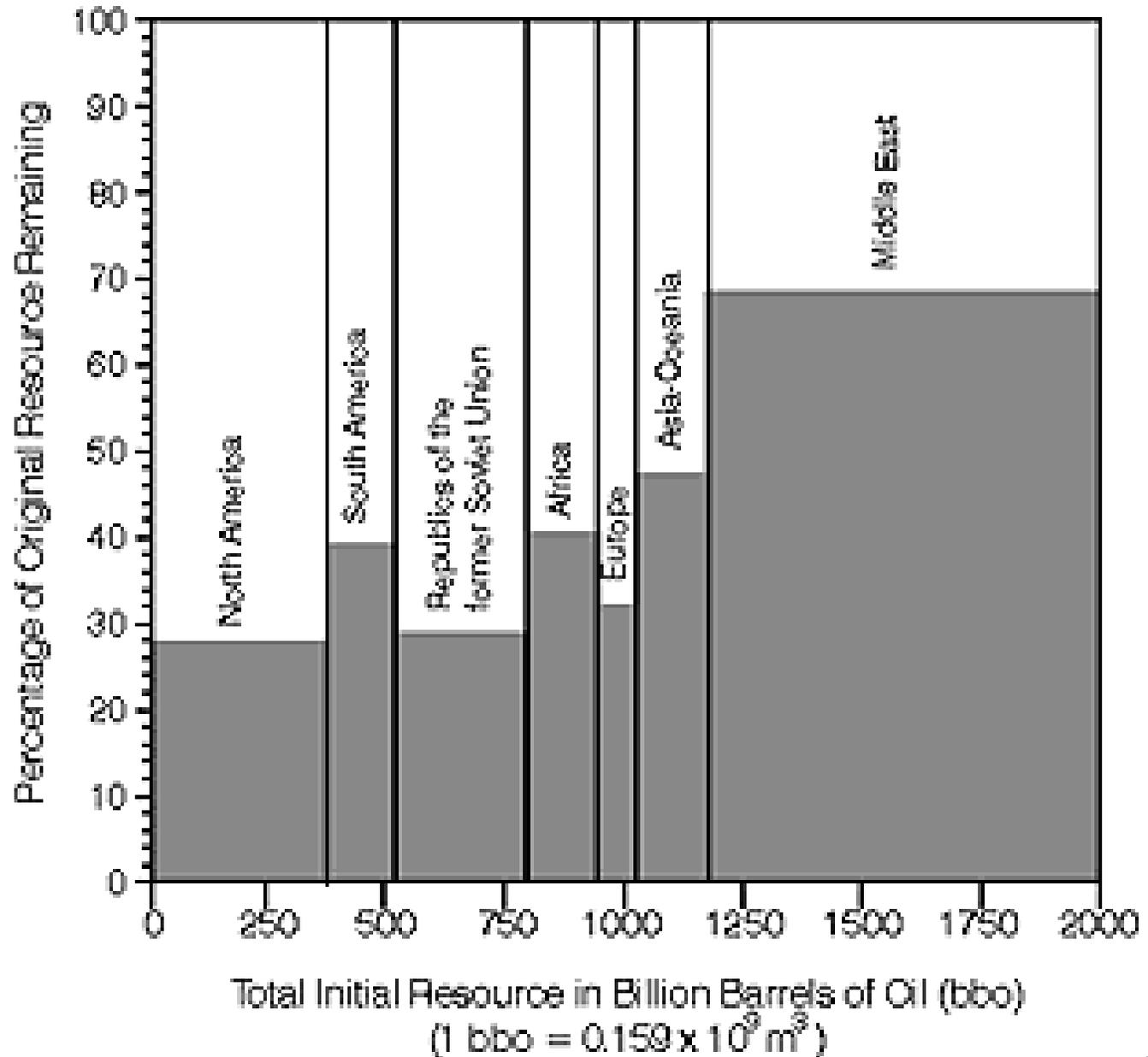
WE HAVE NO FEAR  
OF CRAZY TRAFFIC...

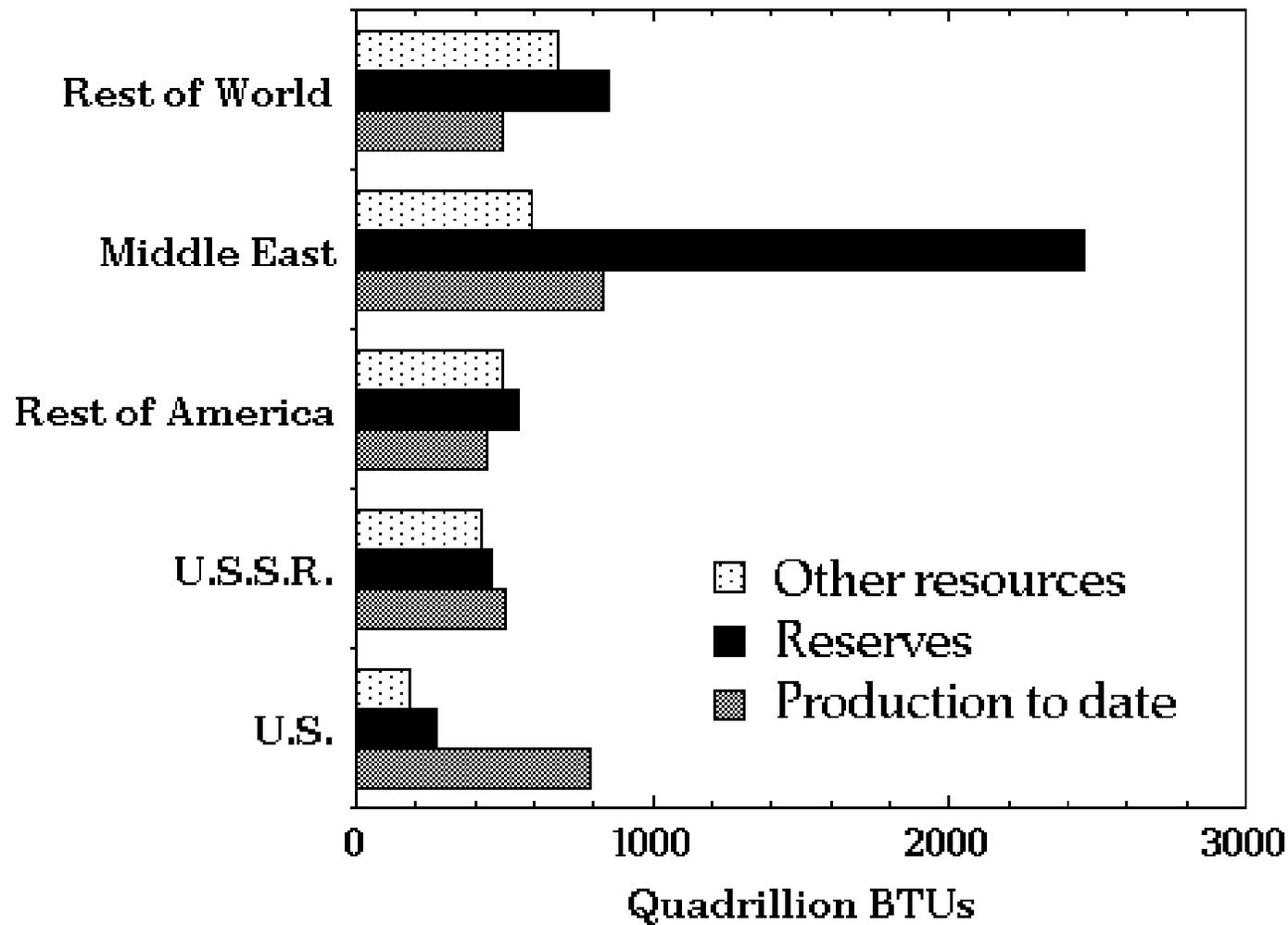


THAT'S ONLY  
BECAUSE WE HAVE  
NO MONEY FOR GAS!



# Earth's Petroleum Fuel Tank, by Region 2010

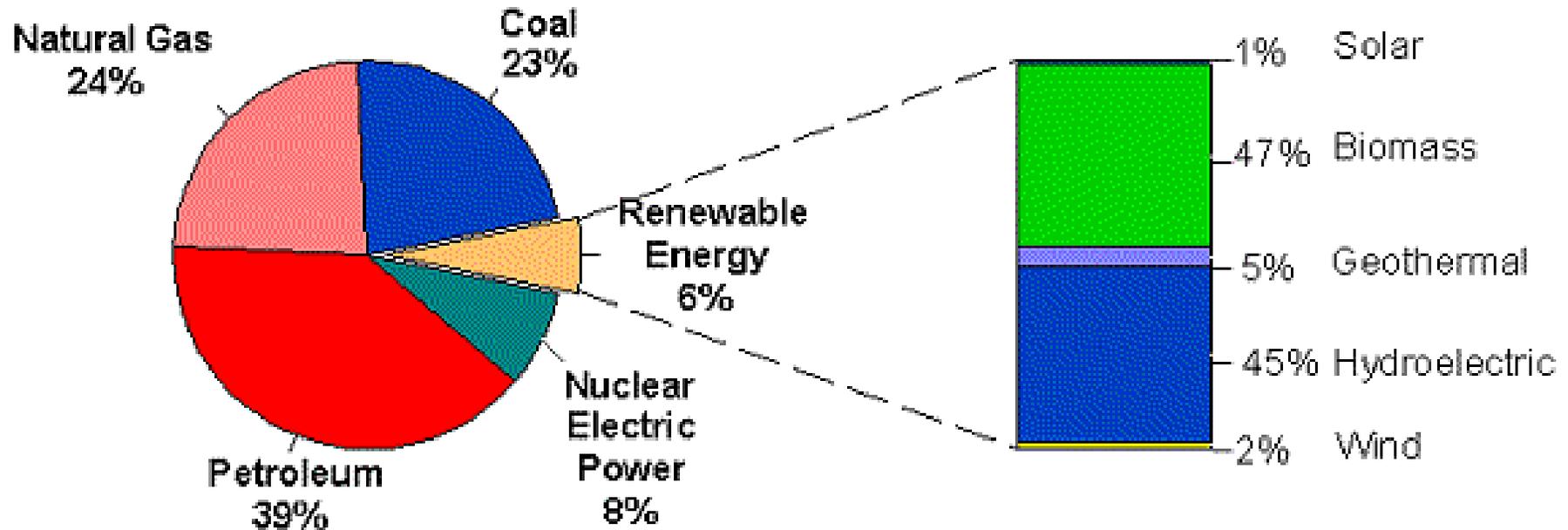




# U.S. ENERGY SUPPLY –2002

Total = 97.551 Quadrillion Btu

Total = 5.881 Quadrillion Btu



NEXT GENERATION CRUCIAL..

NEED TO TRANSITION FROM FOSSIL FUELS  
TO A DIVERSITY OF ENERGY SOURCES

NEED TO INCREASE EFFICIENCY

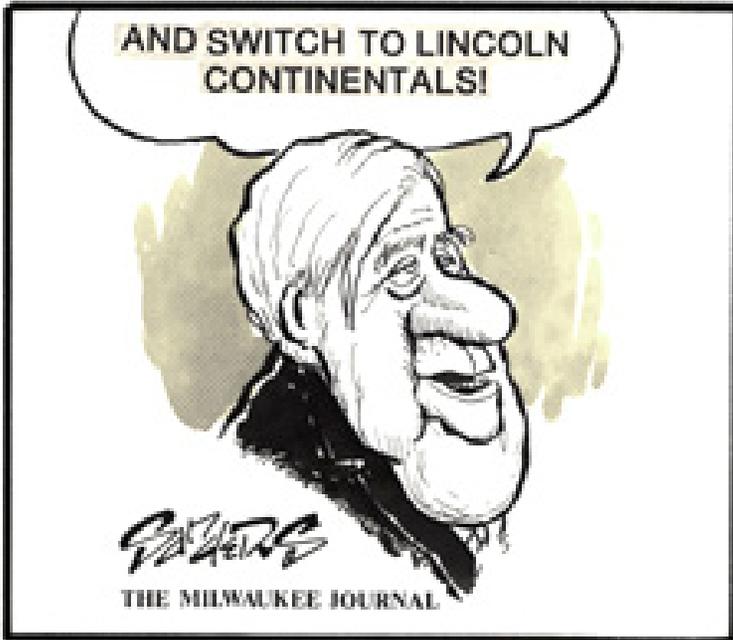
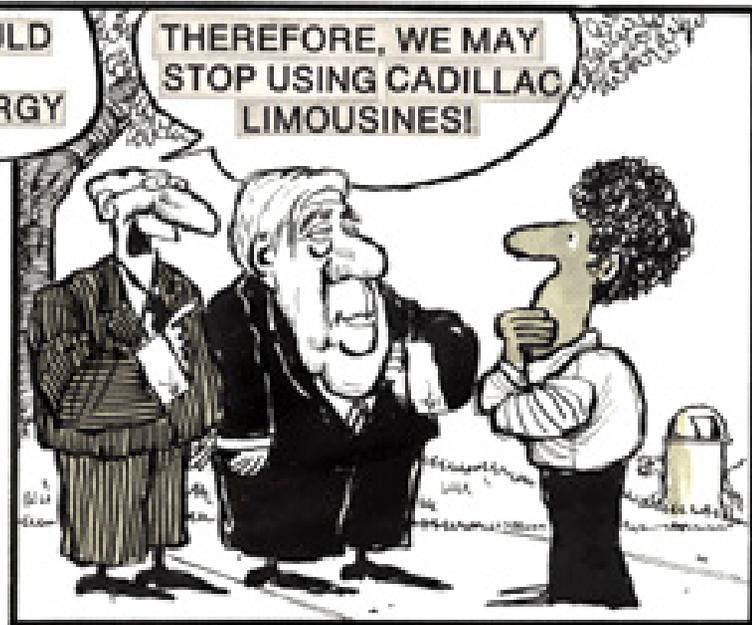
CONSERVATION

NEED TO UNDERSTAND HOW WE ARE IMPACTING  
THE GLOBAL SYSTEM TO BETTER DETERMINE  
HOW TO IMPROVE SITUATION AND HOW TO  
ADAPT

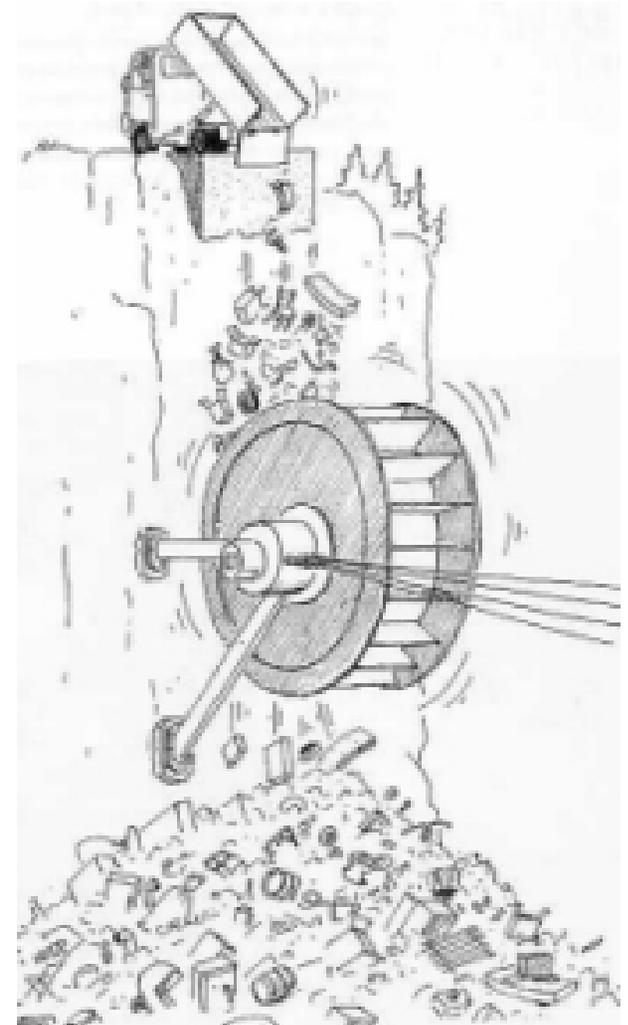
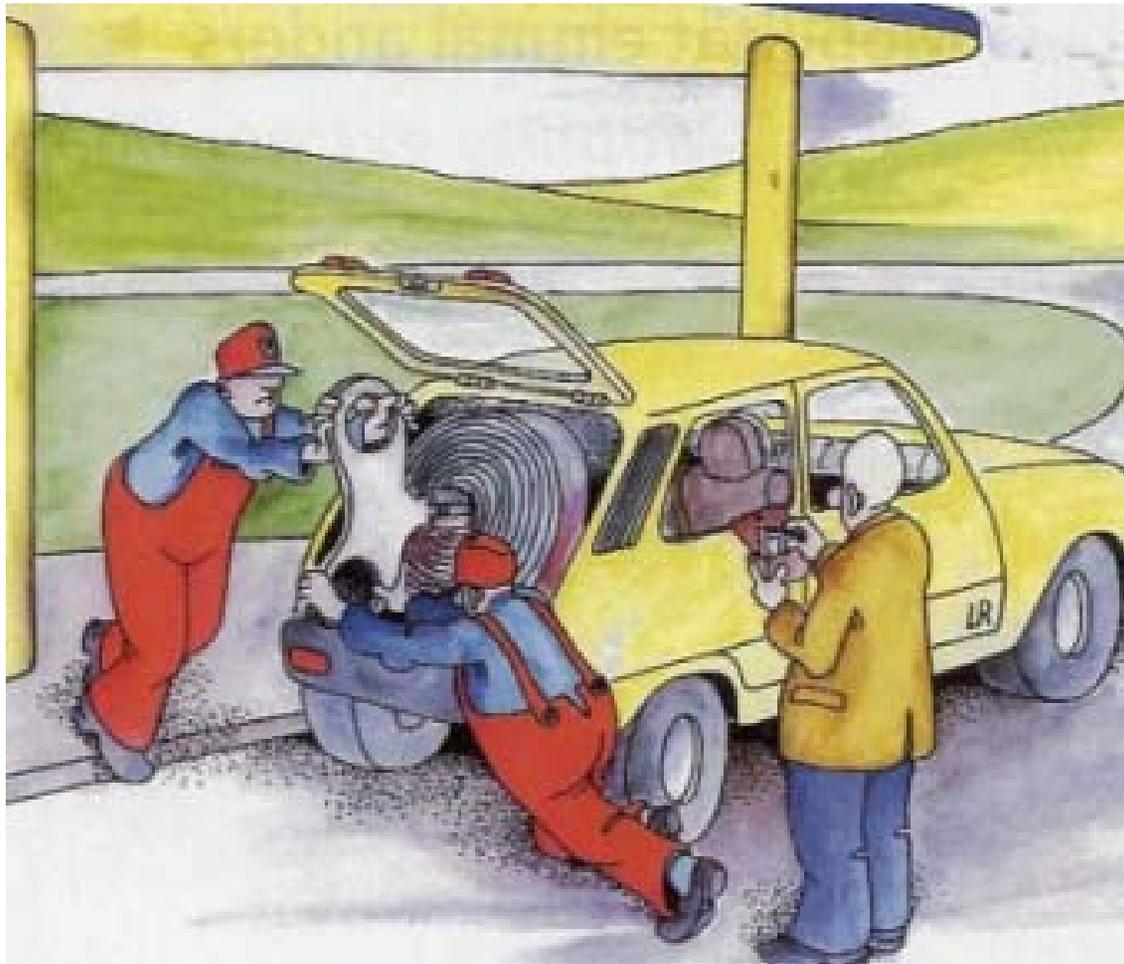
CHANGING LIFESTYLES?



“Wait! Wait! Listen to me! ...  
We don't *have* to be just sheep!”



AND THEN OF COURSE, THERE ARE OTHER POSSIBLE SOLUTIONS...





GLOBAL CHANGE EDUCATION PROGRAM

ANYWAY.. GLAD YOUR PART OF THE GCEP  
FAMILY

LOOK FORWARD TO LISTENING TO YOUR TALKS  
BY UNDERSTANDING THE SYSTEMS BETTER WE  
CAN GIVE US ALL A BETTER CHANCE TO MAKE  
THE WORLD A BETTER PLACE FOR ALL.

IT JUST TAKES HARD WORK AND PATIENCE!