Untouched forests store 3 times more carbon: study

By Michael Perry

SYDNEY (Reuters) - Untouched natural forests store three times more carbon dioxide than previously estimated and 60 percent more than plantation forests, said a new Australian study of "green carbon" and its role in climate change.

Green carbon occurs in natural forests, brown carbon is found in industrialized forests or plantations, grey carbon in fossil fuels and blue carbon in oceans.

Australian National University (ANU) scientists said that the role of untouched forests, and their biomass of green carbon, had been underestimated in the fight against global warming.

The scientists said the U.N.'s Intergovernmental Panel on Climate Change (IPCC) and the Kyoto Protocol did not distinguish between the carbon capacity of plantation forests and untouched forests. Yet untouched forests can carry three times the carbon presently estimated, if their biomass of carbon stock was included, said the ANU report released on Tuesday.

Currently, forest carbon storage capacity is based on plantation forest estimates. The report "Green Carbon, the role of natural forests in carbon storage" said a difference in the definition of a forest was also underestimating the carbon stock in old-growth forests.

The IPCC defines a forest as trees taller than 2 meters (six feet) and a canopy cover greater than 10 percent, but in Australia a forest was defined as having trees taller than 10 meters (33 feet) and a canopy cover greater than 30 percent.

The report said southeast Australia's unlogged forests could store about 640 tonnes per hectare (1,600 tonnes per acre), yet the IPCC estimate put it at only around 217 tonnes of carbon per hectare.

The scientists estimated that around 9.3 billion tonnes of carbon can be stored in the 14.5 million hectares of eucalypt forests in southeast Australia if they are left undisturbed. The IPCC estimates only one third of this capacity and only 27 percent of the forests' biomass carbon stock.

"MORE RESILIENT"

Not only did natural forests store more carbon but because they remained untouched, they stored the carbon for longer than plantation forests which were cut down on a rotation basis.

The report found that "natural forests are more resilient to climate change and disturbances than plantations".

Co-author of the report Brendan Mackey said protecting natural forests served two purposes: it...
maintained a large carbon sink and stopped the release of the forest's stored carbon.

"Protecting the carbon in natural forests is preventing an additional emission of carbon from what
we get from burning fossil fuel," Mackey told Reuters.

The carbon stored in the world's biomass and soil was approximately three times the amount in the
atmosphere, said the report. About 35 percent of greenhouse gases in the atmosphere is a result of
past deforestation and 18 percent of annual global emissions is from continued deforestation.

The report said logging resulted in more than a 40 percent reduction in long-term carbon compared
with unlogged forests.

"The majority of biomass carbon in natural forests resides in the woody biomass of large old trees.
Commercial logging changes the age structure of forests so that the average age of trees is much
younger," it said.

"The carbon stock of forests subject to commercial logging, and of monoculture plantations in
particular, will therefore always be significantly less on average than the carbon stock of natural,
undisturbed forests."

The scientists said preventing further deforestation of southeast Australia's eucalypt forests was the
equivalent of preventing emissions of 460 million tonnes of carbon dioxide a year for the next 100
years.

Allowing logged forests to regrow to their natural carbon storage capacity would avoid emissions of
136 million tonnes of carbon dioxide a year for the next 100 years -- about 25 percent of Australia's
total emissions in 2005.

"In Australia and probably globally the carbon carrying capacity of natural forests is underestimated
and therefore misrepresented in economic valuations and in policy options," said the report.

(Editing by David Fogarty)