Vietnam Country Report

"Drought, water scarcity in Vietnam for last two years"

(Presentation on the 7th International Coordination Group (ICG) Meeting GEOSS Asian Water Cycle Initiative (AWCI) Session: Climate Change Impact – Drought focus)

National Centre for Hydro-Meteorological Forecasting (NCHMF)

Tokyo, 5 October 2010

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Status of Climate change impact to Vietnam

In Vietnam, over the past 50 years, average temperature has increased about 0.5 - 0.7^{0}C, sea level has risen about 20cm. Climate change has made natural disasters, especially typhoons, floods, and droughts more severe.

Under climate change impact, more frequently occur extreme heavy rainfall and severe flood in wet season, but less rainfall and more severe drought in dry season.

In 2007 – 2008 the biggest floods occurred in Vietnam. But for last two year 2009-2010 the drought and water scarcity have been affecting most areas of Vietnam. Vietnam is struggling with its worst drought in more than 100 years.

With practically no rainfall since 2009 September, the country is facing timber fires, plagues of rice-eating insects that are destroying millions of hectares of rice paddies and dried-up rivers.

For a country that historically has had to cope with flash floods and landslides during the July-to-November monsoon season, the drought is taking a lingering toll on the Vietnamese.

"Drought is a slow, silent disaster, which in the long run will have a more profound impact on peoples' livelihoods"

Vietnam Feels the Heat of a 100-Year Drought

The Red River, North Vietnam's largest river, is normally a bustling waterway. Typically the volume of water in the river increases by more than 60 times at the peak of the rainy season. In March 2009, the Red River lowest water level at Hanoi is 0.9 m and in February 2010 – 0.1m only, it's lowest point since 1902 when levels were first recorded.

And water levels in the Mekong Delta in south Vietnam -- called the nation's rice bowl -- have fallen to their lowest points in nearly 20 years, threatening the livelihoods of tens of millions of people who depend on the river basin for farming, fishing and transportation.

The delta faces an even greater threat: salt. Normally, salt water from the South China Sea makes its way about 30 kilometers inland. But 2009 year, salt contamination is hitting areas 60 km up the river. Salinization has been a pattern in the Mekong Delta the last 30 to 50 years but things are getting worse every year due to climate change. More than 62,000 hectares of rice in the Mekong Delta are threatened by salt contamination.

Lowest water level (cm) on the Red River in flood season comparing with historically lowest values

Month	Inflow to Hoa Binh Reservoir (m3/s)			H Yen Bai (cm)			H Tuyen Quang (cm)			H Vu Quang (cm)			H Ha Noi (cm)		
	2010	min hist.	ΔQ	2010	min hist.	ΔH	2010	min hist.	ΔH	2010	min hist.	ΔH	2010	min hist.	ΔH
V	20	174	**-154**	2483	2283	200	1532	1501	31	647	870	**-223**	130	146	**-16**
VI	960	226	734	2566	2326	240	1624	1515	109	746	980	**-234**	200	186	14
VII	1260	744	516	2551	2383	168	1679	1658	21	794	1189	**-395**	252	361	**-109**
VIII	1550	1240	310	2686	2497	189	1804	1612	192	987	1064	**-77**	400	436	**-36**
IX	1300	1100	200	2696	2504	192	1705	1627	78	894	1022	**-128**	332	261	71

Water level at Hanoi was new historically lowest in May, July and August

Water level on Lo River at Vu Quang was new historically lowest from May to October.

Inflow to Hoa Binh reservoir in May was new historically lowest

Monthly average flow in flood season 2010 year

Month	Inflow to Hoa Binh Reservoir (m3/s)			Thao River at Yen Bai (m3/s)			Inflow to Tuyen Quang Reservoir (m3/s)			Lo River at Tuyen Quang (m3/s)			Red River at Ha Noi (m3/s)			Thai Binh River at Pha Lai (cm)		
	2010	Aver.	%	2010	Aver.	%	2010	Aver.	%	2010	Aver.	%	2010	Aver.	%	2010	Aver.	ΔH
V	386	784	-50.8	226	432	-47.7	111	253	-56.1	276	591	-53.3	1280	1560	-17.8	90	133	-43
VI	1410	2410	-41.5	386	865	-55.4	476	513	-7.2	600	1220	-50.8	1600	3330	-52	117	217	-100
VII	2500	4420	-43.4	594	1360	-56.3	911	781	16.6	1560	1900	-17.9	2570	5830	-56	160	345	-185
VIII	2710	4530	-40.2	1040	1730	-40	595	736	-19.2	1350	1880	-28.2	3360	6120	-45.1	203	335	-132
IX	1800	2860	-37	827	1380	-40.1	381	475	-19.8	931	1260	-26.1	2570	4360	-41.1	143	242	-99
TB	1717	3000	-44	614	1150	-48	495	552	-17	944	1370	-31.1	2280	4240	-42	143	254	-112

Runoff on rivers in the North Vietnam in flood season are lower than multiyear average from 17 to 48%

El Niño rears his head

The return of El Niño is the real culprit causing Vietnam's long lasting drought. Even this summer, when rainfall often increases every year, rainfall decreased. Blamed El Niño pushed up temperatures 2-3 degrees Celsius higher than usual. A short rainy season with little perspiration and the early-arrival of the dry season this year has also contributed to the problem.

Decreasing rainfall in dry months leaded to increased drought risks, in particular in the southern regions especially when combined with higher temperatures. Rainfall decreased by 70-90 per cent of normal levels in the northern region from October last year with less rain for this year's wet season, put many rivers and lakes running dry

Fires had destroyed 1,600 hectares of forests so far this year.

Dam reservoirs are also at extremely low levels in Vietnam. The reservoir of the Hoa Binh dam, which supplies over 40% of the electricity consumed in the north and 15% nationally, is only slightly above levels that would require severe restrictions on electricity production.

This year's summer has the highest temperatures recorded in over 60 years for central Vietnam. Vietnam is confronted with its worst water shortage in decades, with the dry spell pushing temperatures to a near 40° C, making the drought the worst in a century. Water levels at the reservoir was just above the "dead point".

Millions hit by drought in Viet Nam

The lives of tens of millions of Vietnamese people living in river basins were affected by the increasing scarcity of water resources resulting from climate change. The severe drought hit Viet Nam as water from upstream becomes more scarce and the problem of saline intrusion into the Dong Nai and Sai Gon Rivers and their tributaries.

While the Mekong Delta farmers cope with drought, they are also challenged by sea water intrusion, which experts also link to climate change.

Nearly 80,000 of the total 630,000 hectares of arable land in the north of Vietnam was affected from this prolonged drought and more than 5,700 hectares was forced to shift to other crops in need of less water

The Government has decided to put aside 100.1 billion VND (5.3 million USD) for drought mitigation activities for the winter-spring crop.

The Red River's section under Long Bien Bridge has become a dry bed.

A floating house on the dry river bed.

The river bed has become a playground for youngsters

The river bed becomes a place for cycling.

Thank you for attention!