

**The aftermath of March 11 earthquake and tsunami in Tohoku – Insect pest issues, emergency pest management operation, and other challenges**

東日本大震災の余波－害虫問題とその対策

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Abstract :

On Friday 11 March 2011, a megascale earthquake magnitude 9 on Richter scale hit northeast area of Japan. The epicenter of the quake was approximately 70 km east of Oshika Peninsular of Tohoku. It was the most powerful earthquake to have hit Japan, so powerful that Honshu Island was moved 2.44 m eastward, and shifted the earth from its axis between 10 and 25 cm. Following the earthquake, it triggered tsunami waves of up to 38.9 m in height (in Miyako) and moved inward up to 10 km. The water covered an area of 561 km<sup>2</sup> and more than 48,000 buildings were destroyed. The damages were estimated at US\$235 billion or more (excluding the subsequent damages of the nuclear disaster) by the World Bank, making it the most expensive natural disaster ever recorded. The disaster has resulted in 15,781 deaths, 5,367 injuries, and 4,086 missing.

That fateful day created a monstrous amount of garbage (25 million ton) that was estimated to be equivalent to that that could only be generated in 25 years. Among the areas that were badly affected by the tsunami were along the 500 km coastal line where seafood and marine product processing industries thrived in many cities and towns. Following the tsunami, hundreds of thousands of ton of seafood products in these

processing plants were strewn all over the coastal cities. In just 2 cities, an estimated amount of 50,000 ton of frozen fish were scattered all around the cities, and all mixed up along with other garbage. In early May 2011, large number of blow flies began to appear in the affected cities, and subsequently blue bottle flies and house flies. Emergency pest management operation has to be executed to intercept possible public health issues. Unfortunately, the Japanese government and local municipalities have given priority to managing the wellbeing of the evacuees in shelter homes. This was when NICCO (Nippon International Cooperation for Community Development), a Japanese non-profit and non-governmental organization came to help. NICCO managed to raise a sum of US\$2.4 million to support the emergency pest management operation in Tohoku. In the meantime, Japan Pest Control Association (JPCA) mobilized a total of 8900 man-day (1 man-day is equivalent to 8 hours) to assist in the operation.

In this seminar, I will discuss the experience from my trips to the tsunami-torn zones in Tohoku, how the March 11, 2011 disaster has led to the serious pest infestation in Tohoku, the emergency pest management operation against the flies, and lastly the entomological studies in relation to the pest species, population dynamics and the eventual successful management of the flies.