

## **Beijing conference reviews Kashin-Beck disease**

Richard Tomlinson

Life is hard for Tibetan farmers in the impoverished, remote regions of the Himalayan plateau, and a little understood, disabling osteoarticular disorder--Kashin-Beck disease--is causing even greater economic difficulties for some rural inhabitants. A recent international symposium in Beijing, organised by Medecins Sans Frontieres (MSF) and the Chinese government, brought together experts from various scientific fields to review likely causes of this mysterious disease and plan research for the future.

The disease affects people in a crescent shaped region through Tibet, northern China, Mongolia, Siberia, and North Korea. In China, about 30 million people live in areas where the disease is endemic, and at least 2-3 million people are estimated to be affected. Many of them live in the poorest parts of Tibet, where the disease is known as "big bone disease." There is no cure, and no clear preventive measures exist, so prevalence can be as high as 80-90% in some small communities.

The debilitating disorder starts in childhood, with symptoms occurring from the age of about 4 years. The disease attacks the growth of joint cartilage, with the worst forms resulting in dwarfism, very short upper limbs, and deformed, painful joints with mobility as low as 30 degrees in the case of elbows. The most frequently affected joints are ankles, knees, wrists and elbows, leading to atrophied muscles, making manual farming work difficult and painful, especially in Tibet's cold climate. Francoise Mathieu, who leads MSF's project on the disease in Tibet, described showing an x ray film of a Tibetan patient's joints to colleagues in Europe. "They thought I was showing an x ray of a person aged 70-80, not a 15 year old," she said.

Kashin-Beck disease was first identified in 1849 by a Russian doctor, Nikolai Ivanovich Kashin, but its causes remain unknown. In Tibet, the risk factors seem to include selenium deficiency in the soil, fungal contamination of barley (the staple grain), organic matter in the water, and iodine deficiency. These create an environment in which mycotoxins enter the rural food supply, but the precise cause is still a mystery.

Since 1992, MSF has run a physiotherapy project in Tibet which includes the training of 90 local doctors, in order to ease the pain and immobility of people with Kashin-Beck disease. Long term progress depends on identifying the cause of the disease, so a three year research project covering 1026 children in 22 Tibetan villages was started in 1998. This entails distributing selenium and iodine supplements, providing fungicide for use on barley, supervising better storage conditions for the grain, and establishing clean drinking water supplies.