March 2010 background sheet 2:

The fight against TB: current threats and challenges

RESULTS
the power to end poverty

Introduction:

Tuberculosis (TB) has been called the "most overlooked tragedy" because of the lack of attention to the disease. TB, HIV and malaria form the world's "big three" infectious and killer diseases. The global TB epidemic has long been neglected, yet this preventable and treatable disease kills 5,000 people per day; more than malaria, and a similar number to HIV/AIDS. Despite progress made in detection of new TB cases and expansion of the World Health Organisation (WHO)'s Directly Observed Therapy Short-course (DOTS) strategy – the internationally recommended approach for the diagnosis and treatment of TB – a number of key barriers and challenges prevent the eradication of TB worldwide.

1. Multi-drug resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB)

MDR-TB (strains of TB that are resistant to standard first-line drugs) emerges as a result of poor TB treatment, and accounts for more than 110,000 deaths each year. In 2008, the WHO estimates there were at least 440,000 new cases of MDR-TB and 40,000 new cases of XDR-TB globally. XDR-TB is resistant to not only the most effective first-line drugs, but also to critical second-line drugs. However XDR-TB does not have to be a death sentence – countries with good TB control programs have demonstrated that a cure rate of 50–60% is possible with early and accurate diagnosis and access to all second-line drugs.

For instance, only a decade ago, Latvia was considered one of the countries most heavily affected by MDR-TB. Yet today, this former Soviet Union country has made significant progress in bringing MDR-TB under control through implementing a "DOTS-Plus" pilot programme to diagnose and treat MDR-TB. The national case detection rate increased from 71 per cent in 1995 to 89 per cent in 2007, and the treatment success rate increased from 61 per cent in 1995 to 73 percent in 2006. Latvia's experience in managing MDR-TB demonstrates that combined international and national efforts to fight MDR-TB through a programme which is well integrated into the national TB strategy can have significant impact on the disease.

2. TB and HIV/AIDS

TB is the number one infectious killer among HIV-positive persons and kills up to half of all AIDS patients worldwide. HIV and TB form a lethal combination as both infections reinforce each other: people infected with HIV are more likely to develop TB due to their impaired immune system, and are more likely to die from TB without prompt treatment. At the same time, TB bacteria can fuel the progression of HIV, causing patients to become sick more rapidly. Moreover, TB's association with HIV is one of the main causes of TB-related stigma. Many people still believe that being infected by TB automatically means that a person is infected by HIV/AIDS as well. Therefore, many avoid seeking early diagnostic tests for TB or fail to complete their treatment regimen because they do not want their family, friends and peers to suspect that they are HIV-positive.

When Dorothy, a single mother of five, told her neighbours in the Kenyan capital, Nairobi that she had tuberculosis (TB), she expected sympathy and maybe even offers of help. Instead, she found herself so severely ostracized; she felt she had to move out. "The kind of discrimination I faced from my neighbours made me regret sharing my condition with them; I could not even share the communal sink", she says.

3. TB and Women

TB is the third leading cause of illness and death among adult women worldwide. In 2008, 3.6 million women developed TB and approximately half a million died.

Women's susceptibility to TB in low-income countries is often linked to their lower socio-economic status, reduced access to economic resources, lower education, and fewer opportunities to access relevant health information as compared to men. As a result, women tend to use less qualified health services or may delay accessing diagnosis or care until the disease is severe. Studies have also shown a strong association between TB of the lungs and women who cook indoors with biomass cooking fuels, such as wood or cow dung. It is thought that cooking smoke impairs the respiratory system's ability to resist TB infection, or in the case of women who are already infected, it may impair the immune system's ability to fight off the development of active TB.

In low-income countries, women tend to bear the highest levels of stigma about TB. In some communities, women may be forced into divorce, sent back to their parent's home, or if unmarried, have fewer chances of finding a marriage partner. A TB patient in Bangladesh explains how she was isolated from her community because of her disease: "I cannot go to any social happenings. My dignity is less because I have moved to my mother's place from my husband's home. People from my husband's family stay away from me. My pride and dignity have been decreased a lot because of my disease."

It is clear that women are particularly vulnerable from TB, and that investment is needed to provide much earlier, and better, diagnosis and treatment. Although there has been considerable progress made in reaching populations through widespread roll out of DOTS, TB will never be eradicated unless the most vulnerable groups, including women, are reached.

4. Current diagnosis, treatment and prevention

A major barrier to progress in the fight against TB is that the world still lacks adequate tools for diagnosis, treatment and prevention. For the past 60 years, TB patients have been treated with essentially the same therapeutic regimens. The only licensed vaccine against TB, the BCG, is more than 100 years old and does not prevent pulmonary TB in adults, which is the most common and infectious form of the disease.

In many poor settings, TB is still diagnosed using the same methods as over a century ago – by examining sputum samples under a microscope. This method is slow and often inaccurate. It is particularly ineffective at diagnosing extra-pulmonary TB (TB outside of the lungs), TB in people living with HIV and MDR-TB. Rapid and accurate diagnostic tools that can be used in low-income countries are urgently needed.

Current treatment regimes for TB are too long, with a full course of treatment prescribed for a minimum of 6 months. The current treatment regimen works for active, drug-susceptible TB — as long as patients complete the full six- to nine-month treatment, ideally under direct observation by a healthcare worker or community member. However, adherence to this treatment is challenging, particularly as patients begin to feel better relatively quickly and no longer want to take the burdensome average of 130 doses. If treatment is not completed, a patient may develop drug-resistant TB (MDR-TB) which is much more difficult and costly to treat.

With the vast majority of TB patients concentrated in the world's poorest countries, there has traditionally been little incentive for the private sector to invest in the major research and development costs necessary for new TB medicines. Global investment in TB research and development has decelerated rather than increased in the years since the *Global Plan to Stop TB, 2006-2015* was issued.

In January this year, the Bill and Melinda Gates Foundation announced a commitment of $10 billion over the next 10 years to the research and development of new TB vaccines. Although this is a very welcome development it is not sufficient to meet the need. Therefore governments also need to step up to provide additional investment into all new tools to diagnosis, treat and prevent this disease.