TB Prevalence Survey: Back Ground

- Identified as one of three strategic areas of the TF in the 2\textsuperscript{nd} Global meeting, December, 2007

- 21 countries (12 AFRO, 1 EMRO, 4 SEARO, 4 WPRO) were selected as global focus countries to carry a national survey before 2015

- The 1\textsuperscript{st} edition of the WHO survey handbook (RED book) was published in 2007
Enormous progress since 2007

However No progress in Mali, Mozambique and Sierra Leone among GFC

Global focus countries (GFC) selected

Asia - GFC

Africa - GFC

Other

CAM  MALY  INDO  ERIT  THAI  PHP  BANG  MYN  CHINA  VTN  ETH  TANZ  LAOS  THAI  RWAN  KEN  S. AFR  ZAM  NIG  UGAN  MAL  MONG  GDPK  PHN  MYN  VTN  BANG
Progress since 2007

- All surveys since 2009 have been designed along the TF recommendations and the protocols were reviewed by two or more TF member institutes/consultants
- Publication of 2nd edition of the Survey Handbook (Lime Book)
- Preparatory and Follow up workshops with survey countries and open seminars and lectures in/around Union conferences and in WHO regions
Major Activities for standardized quality surveys

- Seminars/Workshops
- Protocol Review
- Direct technical assistance and its coordination
  - Facilitating AA collaborations
- Periodic reviews
- Study/Observation opportunities between countries
- Capacity development of young consultants: study design and field management
<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Smear Positive</th>
<th>Bact. Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines</td>
<td>2007</td>
<td>260 (170-360)</td>
<td>660 (510-880)</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>2007</td>
<td>197 (149-254)</td>
<td>307 (248-367)**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**1 culture</td>
</tr>
<tr>
<td>Myanmar</td>
<td>2009</td>
<td>242 (186-315)</td>
<td>613 (502-748)</td>
</tr>
<tr>
<td>China</td>
<td>2010</td>
<td>66 (53-79)</td>
<td>119 (103-135)</td>
</tr>
<tr>
<td>Cambodia</td>
<td>2011*</td>
<td>251 (194-354)</td>
<td>829 (704 – 975)</td>
</tr>
<tr>
<td>Lao</td>
<td>2010/11*</td>
<td>243 (169-317)***</td>
<td>572 (429-715)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>***culture confirmed cases</td>
<td></td>
</tr>
<tr>
<td>Ethiopia</td>
<td>2011</td>
<td>108 (73-143)</td>
<td>277 (208-347)**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**1 culture</td>
</tr>
</tbody>
</table>
Viet Nam, Philippines and Myanmar completed the survey by 2010, planning a repeat survey in 2015/16 or 2016/17

China (2000 and 2010) and Cambodia (2002 and 2011) have completed two surveys since 2000

Pakistan completed a survey in 2011

Thailand launched a survey in March 2012 and Indonesia will follow

Bangladesh is planning a survey with CXR screening and culture based diagnosis
Global Focus Countries in Africa (1)

- Tanzania and Nigeria are approaching half way of the field data collection
- Rwanda survey just launched
- Ghana schedules a field test in May 2012
- South Africa is in final process of selection of an implementing partner
- Procurement in process in Kenya and Malawi
- Zambia secured fund and resumed preparation
Global Focus Countries in Africa (2)

- Slow progress in **Uganda** due to the probation of GF disbursement in 2011 and challenge in central management team, the NTP

- No concrete move in **Mali**, **Mozambique** and **Sierra Leone**. However, there is a sign/plan to develop capacity to aim a survey around 2015 in **Mozambique**.
Major Constraints

- Funding/ Financial Management/Cost
  - High cost in Africa
  - A suspension of other activities by GF suspends M/E and surveys
  - Lack of flexibility to support field activities

- Procurement

- Culture Lab Network

External factors

- Political instability (Elections, Terrors …), Natural Disaster (Flood, Draught …)
Achievement and Lessons learnt from recent surveys

Direct Digital CXR car for Thai survey

Portable equipment in Cambodia
Effect (& Limitation) of DOTS
Bacteriologically confirmed PTB in China

From partial DOTS to DOTS with strengthened surveillance

- 45% (35-53%)
- 87%
- 18%

Prevalence /100 000 age 15 or older

2000
2010

MDR
22 -> 7/100 000

132
84
119
11
108

Known
Undetected
Effect (& Limitation) of DOTS (2) 
Prevalence of Smear Positive PTB in Cambodia

From “100% DOTS but in hospital” to “Decentralized DOTS”

- With chronic cough: 436 (2002) - 251 (2011) = -43%
  - 274 (2002) - 162 (2011) = -58%
  - 162 (2002) - 135 (2011) = -17%
More cases from reactivation/remote infection than new infection in Asia
(Data: National Survey 2011: Lao PDR)

MALE

FEMALE
Gaps between ...(Myanmar 2010) prevalence of different condition and notification

B+ and S+;
S+ and S+ with chronic cough; and
Prevalence and Notification

World Health Organization
### Gap between Notification and Prevalence
#### Are we detecting enough?

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Prevalence*</th>
<th>Notification**</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines</td>
<td>2007</td>
<td>200*</td>
<td>98**</td>
<td>2.0</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>2007</td>
<td>197</td>
<td>85</td>
<td>2.3</td>
</tr>
<tr>
<td>Myanmar</td>
<td>2009</td>
<td>242</td>
<td>116</td>
<td>2.1</td>
</tr>
<tr>
<td>China</td>
<td>2010</td>
<td>66</td>
<td>39</td>
<td>1.7</td>
</tr>
<tr>
<td>Cambodia</td>
<td>2011</td>
<td>251</td>
<td>180</td>
<td>1.4</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>2008</td>
<td>79</td>
<td>107</td>
<td>0.74</td>
</tr>
</tbody>
</table>

*Point estimate of Smear positive TB prevalence in aged 15y or older observed by a survey except for Philippines (all age); **Notification rate of S+ TB in age 15 or older in the survey year except for Philippines (all age); Source: Global TB database, WHO
Gap between young and old (Prevalence survey: Cambodia 2011)

Younger: Shorter duration of S+: more likely to detected
Comparison of Prevalence and Notification (Myanmar 2009)
Gap within a country

<table>
<thead>
<tr>
<th>Strata</th>
<th>Prevalence*</th>
<th>95% CI</th>
<th>Notification 2009 /100 000</th>
<th>N/P</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>171.5</td>
<td>131.7</td>
<td>223.2</td>
<td>81</td>
<td>0.47</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>275.9</td>
<td>209.0</td>
<td>364.1</td>
<td>110</td>
<td>0.40</td>
</tr>
<tr>
<td>Female</td>
<td>88.1</td>
<td>55.5</td>
<td>140.1</td>
<td>53</td>
<td>0.60</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-24</td>
<td>43.2</td>
<td>9.2</td>
<td>88.6</td>
<td>63</td>
<td>1.23</td>
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<tr>
<td>25-34</td>
<td>189.6</td>
<td>110.3</td>
<td>271.9</td>
<td>108</td>
<td>0.53</td>
</tr>
<tr>
<td>35-44</td>
<td>349.7</td>
<td>232.6</td>
<td>457.4</td>
<td>127</td>
<td>0.35</td>
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<tr>
<td>45-54</td>
<td>304.2</td>
<td>184.9</td>
<td>421.7</td>
<td>142</td>
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<tr>
<td>55-64</td>
<td>372.8</td>
<td>183.6</td>
<td>502.5</td>
<td>146</td>
<td>0.39</td>
</tr>
<tr>
<td>65+</td>
<td>394.5</td>
<td>193.4</td>
<td>557.6</td>
<td>120</td>
<td>0.26</td>
</tr>
<tr>
<td>Strata</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>249.6</td>
<td>159.3</td>
<td>390.6</td>
<td>69</td>
<td>0.32</td>
</tr>
<tr>
<td>Region</td>
<td>138.6</td>
<td>99.3</td>
<td>193.3</td>
<td>85</td>
<td>0.71</td>
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<tr>
<td>Upper</td>
<td>147.5</td>
<td>95.9</td>
<td>226.6</td>
<td>59</td>
<td>0.46</td>
</tr>
<tr>
<td>Lower</td>
<td>192.9</td>
<td>136.6</td>
<td>272.4</td>
<td>102</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Prevalence rate*: adjusted to the total population including children
Lao PDR and Ethiopia

TWO NON-GLOBAL FOCUS COUNTRIES (2007 DESIGNATION) SUPPORTED BY THE TF MEMBERS COMPLETED NATIONAL SURVEYS SUCCESSFULLY
Lao PDR (Aug 2010-Dec 2011)

- Strong External Support by KIT (Lab), Cambodia NTP (Field management) and WPRO

- Ground level support by Mérieux Lab and Quality stationed advisor by GF (data management etc)

- Slow disbursement of the GF and business of NTP team delayed field operation. However goodwill of partners (USAID, Damian F, WHO…) facilitated the completion of the survey. Quality field work was done.

- HQ was mobilized for data management consultation and reviews
Eligibility & Participation by time: initial turbulence was observed in every survey

Average Participation Rate: 85.1%
Prevalence of Culture confirmed cases – crude prevalence: TB prevalence is 2-3 times higher than it was estimated.
Ethiopia (Oct 2010 - June 2011)

- First National Survey in Africa with CXR screening and culture based diagnosis since 1960s despite it was not designated as a global focus country.

- Several factors made WHO HQ move to provide TA: 22 HBCs; Strong leadership by MOH; commitment of local stakeholders including WR; GF re-programming and TA fund by Italian Cooperation; and Willingness of young national staff

- TA from Cambodia NTP was an essential factor to carry out quality field operation without in-country experiences.
TA (Ethiopian example)

- Dec ‘08: Feasibility study and orientation
- Jul-Aug ’09: Preparatory WS and Basic design
- Mar ‘10: Coordination and advocacy, Protocol review and clearance
- Lab capacity development (FIND)
- Jul ‘10: TOT and Simulation (Field test) including Radiology
- Sept ’10 Training and Pilot survey
- Oct ‘10 Review in early stage
- Feb ‘11: Mid term review, data management
- Apr ’11: Follow up visit by Cambodia
- Sept ‘11: Data cleaning
- Sept-Oct ‘11: Analysis
- Dec ‘11: Dissemination
Prevalence was much lower than previously thought, however ....

Age & Sex proportion of prevalent S+ cases

Cambodia vs Ethiopia
Current Targets

- Complete at least one quality survey along the TF recommendations in every Global Focus Country

- Complete a few more repeat surveys in Asia by 2016/17
Proposal to discuss (1)

- To add Ethiopia and Lao PDR to the list of Global Focus Countries officially

- To delete Mali and Sierra Leone from the list, and stop to push countries

- To pend a decision on Mozambique, observing a progress of capacity development with partners

- How to support non-global focus countries
Gambia launched a survey. More countries are showing interests, trying to secure the counterpart funding even by the government or other external sources.

In addition to TA by traditional partners in each country, the TF provides protocol review, and opportunities to take part in an open seminar and a study tour when the WHO regional office supports the country.

HR gap in HQ and Funding gap for TA to support a travel of young consultants – direct TA support by the TF seems infeasible.
Review and analysis of Asian Surveys

- Publications are planned in collaboration with countries
  - Preparation work is going on
Although initial turbulence was observed in every survey, countries are rather comfortable to assure the quality of field work. Country-country collaboration contributes a lot in this area, while quality of Lab work should have assessed and assured in collaboration with SRL and partners. However, there is still big gaps in data management and analysis between idea and reality. Critical review is essential.

Proposal (2) to discuss

- To extend task force expert review to cover data cleaning, analysis and reporting

  - Already existing mechanism
    - Study design: protocol review etc
    - Implementation: country-country support, mid-term review etc
Repeat surveys around/after 2015

- At least five year interval is necessary
- No chance to do one in Africa as the first survey in Ethiopia has just completed
- Repeat survey is Asia: Will be reported and discussed in this afternoon
Special Thanks

- For country survey implementations: Survey teams, local partners and consultants.

- For TA and protocol review for more than one countries: Emily Bloss, Eveline Klinkenberg, Frank van Leth, Julia Ershova, Marieke van der Werf, Marina Tadolini, Narayan Pendse, Norio Yamada, Peou Satha, SJ Kim

- For protocol review of more than one countries: Kosuke Okada, Eugene McCray, Patrick Moonan, Sara Whitehead, Sian Floyd, Timothy Holtz, Yasunori Ichimura, Irwin Law
Questions to the TF

1. What are your general comments on progress to date in the design, implementation, analysis and reporting of TB prevalence surveys?

2. Do you agree with: a) the sub-group/secretariat decision to add Ethiopia and Lao PDR and b) the removal of Mali and Sierra Leone from the list of Global Focus Countries for prevalence surveys?

3. To further improve the quality of information drawn from surveys, should we institutionalize the certification of data cleaning, analysis and reporting?