

**INDIA**  
**INTEGRATED DISEASE SURVEILLANCE PROJECT (Credit 3952-IN)**  
**JOINT IMPLEMENTATION REVIEW**  
**AIDE MEMOIRE**  
**January 12-29, 2009**

1. A joint implementation review of the Integrated Disease Surveillance Project (IDSP) was conducted by a World Bank team with technical support from the World Health Organization (WHO) and Centers for Disease Control (CDC), Atlanta during January 12-29, 2009<sup>1</sup>. Representatives from USAID have also participated in discussions held at Delhi. The members of the review team undertook field visits to the states of Andhra Pradesh, Maharashtra and Orissa to assess on the ground implementation progress. Two consultations with surveillance officers from 22 states and two Regional Coordinators, IDSP (first based in Guwahati, covering North-East States and second based in Kolkata covering Bihar, Jharkhand and West Bengal) were held at Hyderabad and Delhi followed by working group discussions covering Information Technology, laboratory based surveillance, training and capacity building for disease surveillance, surveillance of seasonal and avian influenza, and strategic context for disease surveillance in India on January 27 and 28.
2. The Bank team would like to thank Mr. Naresh Dayal, Secretary, Health & Family Welfare, Government of India (GOI), Dr. Shiv Lal, Special Director General of Health Services (Public Health) and Project Director (IDSP) and Dr. R.S. Shukla, Joint Secretary, for their strong commitment to the project and encouraging frank and open discussions on project restructuring. The Bank team would like to specially thank Dr. A.C. Dhariwal the National Project Officer (NPO) for the IDSP for his efforts during the past 8 months to improve outbreak reporting and enhance state ownership for IDSP. During past 6 months significant contributions have been made by Dr. R.L. Ichhpujani and Dr. Lata Kapoor to develop new approaches to improve laboratory surveillance. The review has greatly benefited from the high quality technical interactions with various staff from IDSP, National Institute for Communicable Diseases (NICD) and National Informatics Centre (NIC) during the field visits and consultations held in Delhi and Hyderabad. The review team would also like to complement the state and district surveillance units of the states visited for the warm welcome extended and for excellent organization of the field visits. The Bank team is grateful to the high level CDC team for providing strategic directions to the project during the working group discussions. The constant technical support being provided by WHO to IDSP is also gratefully acknowledged.
3. Following the review, the team found that project restructuring will be needed. In particular, the team agreed that that the project can (i) continue to support basic surveillance preparedness in all states to meet essential requirements of the International Health Regulation 2005 (IHR-2005); and (ii) demonstrate the operational feasibility of establishing full range of core surveillance activities including a high quality outbreak detection and response mechanism in 4-6 selected high performing states. Restructuring will enable the project to support

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demonstration of a viable model of disease surveillance for India which can be incrementally scaled-up to other states. Clearly defined and measurable outcome indicators associated with these objectives have been identified including additional time required for their achievement, and actions required from MOHFW and the Bank. The team reported its findings at a wrap-up meeting, chaired by the Secretary, Health and Family Welfare, on January 29, 2009. This Aide Memoire summarizes the findings of the review along with component-wise implementation ratings and agreed key actions. The detailed implementation progress is annexed and has two parts: Part I for the IDSP and Part II for the human health sub component of Avian influenza. A separate review for the animal health sub component of Avian Influenza is scheduled later this year. The rest of this report presents detailed findings of the review.

### 3. Key Project Data

Project Data	Project Performance Ratings		
<i>Board Approval: July 8, 2004</i>	<i>Summary Ratings:</i>	<i>Last</i>	<i>Now</i>
<i>Effectiveness Date: October 28, 2004</i>	Achievement of PDO	MS	MU
<i>Original Closing Date: March 31, 2010</i>	Implementation Progress	MS	MU
<i>Revised Closing Date (if relevant):</i>	Financial Management:	MS	MU
<i>MTR Date (Actual if completed): June, 2008</i>			
<i>Original Ln./Cr. Amt: US\$ 68 Million</i>			
<i>Revised Ln./Cr. Amt:</i>			
<i>Amount Disbursed: US\$ 18.1 Million</i>			

Ratings: **HS**=Highly Satisfactory; **S**=Satisfactory; **MS**= Moderately Satisfactory; **MU**= Moderately Unsatisfactory; **U**=Unsatisfactory; **HU**=Highly Unsatisfactory; **NA**=Not Applicable; **NR**=Not Rated

### Summary

4. The project supports India's long run vision of establishing a high quality and dependable disease surveillance program compliant with the International Health Regulations (IHR-2005). Specifically, the project aimed to improve reporting of high priority diseases and risk factors from public and private health care providers to enhance appropriate on the ground response. During the four years of implementation the project has shown some good accomplishments which include:

- (a) creation of a surveillance infrastructure especially a nation-wide IT network with video conferencing facility (320 sites connected by satellite and 623 through broadband) and project portal is now operational allowing on-line data entry, analysis and e-learning;
- (b) improved collection of data on syndromes and some identified conditions (in hospitals) including analysis at national level and by some states;
- (c) establishment of an outbreak detection and response reporting system which reported 553 outbreaks in 2008 and provided weekly alerts;
- (d) Completion of large population based surveys to know the prevalence of non communicable disease risk factors in 7 states;
- (e) development of a 2 week training module in field epidemiology with technical support from WHO and training 136 district surveillance officers in addition to training for 23,660 medical officers, 1,37,556 health workers and 8,152 laboratory technicians as planned under IDSP;

- (f) establishment of a toll free call centre for SOS reporting of outbreaks and daily media scanning to identify outbreaks reported by media and follow-up with states and districts on actions taken.

5. During the field visits and interactions with states, several innovations to improve reporting and quality of outbreak responses were observed. The notable among these include SMS based reporting of data by health workers being piloted in 3 districts of Andhra Pradesh, competency based training for outbreak investigation involving medical colleges in Gujarat with support from WHO and effective use of community informants and decentralized data entry at block level in Orissa. The states confirmed that the Central Surveillance Unit (CSU) is now holding regular video conferences with them to follow-up on outbreaks and program implementation issues. Performance indicators for IDSP component are presented in Annex 1 while Annex 3 presents component-wise implementation progress.

6. Notwithstanding the notable achievements, the project is facing serious implementation challenges many of which were not envisaged during the design. The likelihood of risk that the project will not achieve its objective of establishing a nation-wide high quality decentralized disease surveillance system by the current closing date of March 2010 is very high. The notable among the implementation challenges are,

- (a) operational challenges in building the public health laboratory network resulting in lack of etiological confirmation of most outbreaks reported;
- (b) non availability of dedicated and trained epidemiologists at district level capable of analyzing the IDSP data and mount appropriate local response;
- (c) poor participation of private health providers and public hospitals in reporting;
- (d) low state ownership due to lack of flexibility in the project design to respond to state specific needs; and
- (e) conflicting demands on limited staff available at state and district levels and frequent changes of surveillance officers at state and district levels.

7. Due to slow implementation progress, delayed reporting by states and use of government funds for Information Technology services, the disbursement remains low with only 25% of the Credit used so far. In January 2007 the project was restructured to provide nearly half of the total credit (SDR 21.53 million) for urgent financing requested by GOI for the prevention and control of Avian Influenza (AI) Pandemic. A major part of this activity is to be implemented by the Department of Animal Husbandry Dairy and Fisheries (DAHDF), under the Ministry of Agriculture, GOI. India has reported repeated outbreaks of AI among poultry in eastern and north eastern parts of India since December 2008. While no human case is reported so far in India, these outbreaks posed huge demands on the program managers for this component in organizing control actions like culling, vaccination, surveillance and prophylaxis for the high risk populations resulting in further slow-down of planned activities.

8. Despite these implementation challenges and slow disbursement, it is expected that the program will pick-up soon. First of all because, India has demonstrated a strong political commitment for establishing and running a high quality disease surveillance program responsive to the requirements of the IHR 2005. This is particularly evidenced by the creation of a large dedicated human resource for disease surveillance (646 epidemiologists, 85 microbiologists and 35 entomologists<sup>2</sup>) under the National Rural Health Mission (NRHM); these new staff will be

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<sup>2</sup> As of date 491 epidemiologists, 85 microbiologists and 23 entomologists have been selected.

available for IDSP from February 2009. Secondly, there is also a renewed effort to improve the laboratory support for disease surveillance making use of existing laboratories and creating networks of referral laboratories to improve access to quality public health laboratory services. Several states have shown keen interest to try the new approach and two states have already prepared detailed plans. But IDSP still has a long way to go to achieve its objective of establishing a decentralized surveillance system on a nation-wide scale. Several implementation problems are noted in phase III states, with only 10% of the districts sharing weekly surveillance reports and there are significant delays in financial reporting leading to frequent discontinuation of disbursement by IDA. The progress on community surveillance, urban surveillance and infectious disease hospital networking continued to be slow. Therefore, both achievement of project development objective and implementation are rated moderately unsatisfactory.

9. Furthermore, the observations during the field visits, and interactions with states, project team, experts from WHO and CDC, and MOHFW officers suggest the need for a shared understanding about the project compatible with the evolving national surveillance program under the National Center for Disease Control (NCDC) and what outcomes can be realistically delivered by the project. As a result, there are wide ranging expectations from the stakeholders without taking in to consideration the operational constraints and state capacities. It is evident from the implementation experiences that all states will not be able to achieve uniform surveillance standards and therefore an incremental approach will be required for scaling-up the full package of surveillance. To address these concerns, it was agreed that the project will continue to have nation-wide scope to meet the global IHR 2005 requirements, but in terms of project specific outcomes there will be a strategic focus on core surveillance accomplishments by “establishing a high quality outbreak detection and response system” in 4-6 states which will:

- Ensure timely detection, high quality investigation including laboratory confirmation and adequate response to disease outbreaks
- Support a decentralized surveillance system using new human resources provided under NRHM to promote analysis and response at sector, block and district levels
- Make strategic use of existing capable laboratories to conduct required confirmatory tests for public health outbreak investigation rather than developing new laboratory capacity to perform these tests
- Use innovative approaches to promote participation of communities, Public sector hospitals, Medical College hospitals and private health care providers including laboratories in disease surveillance

10. As mentioned in the summary, in the light of the necessity for a strategic shift, it was agreed during this review that the World Bank support to the program needs to be restructured and the Project Development Objective (PDO) to be revised with appropriate results framework focusing on measurable outcomes for a core surveillance system in 4-6 states while supporting limited nation-wide surveillance preparedness to meet IHR 2005 requirements. The proposed development objective and results framework resulting from the stakeholder consultations held during the review are presented in Annex 6. The changes in the PDO and results framework require a restructuring of the project and an extension of at least 2 more years to achieve the outcomes. Considering the criticality of AI pandemic preparedness activities, similar extension will be required for this component also. The preliminary cost estimates suggest that probably the available IDA Credit under the project will be adequate for the extended period.

11. In addition to project restructuring, it was agreed that MOHFW will seek a two year extension for the project and both CSU and Bank team will share these developments with the

DAHDF to seek their concurrence to this approach. Both teams will work closely to complete the required documentation to obtain clearances for the project restructuring by April 2009. To enable the CSU to effectively respond to this challenge requires two important actions. First, there should be stability for the core CSU staff during the period of extension and second, the CSU should have sustained high quality technical support from competent agencies like CDC and WHO. The agreed key actions for follow-up are presented in Annex 2.

### **Disbursements and Financial Management**

12. Disbursement: The project has disbursed USD 18.1 million including Special Account Advance of USD 6.8 million as of January 25, 2009 which takes the total disbursement to 25% of the signed amount. There are about USD 700,000 reimbursement claims in the pipeline. With the exchange rate fluctuations, the total Credit available for the project has gone up to USD 72 million out of which USD 39.7 million equivalent has been earmarked for the IDSP and remaining USD 32.7 million for the Avian Influenza. Out of the available Credit, the IDSP has so far disbursed around 28.6% excluding the special account advance. Use of GOI agencies for IT hardware, software and networking, and delayed financial reporting by the states are main reasons for the low disbursement. While the disbursement is expected to pick-up after the recruitment of new staff at district and state levels, the original project as well as AI components will not be able to fully disburse the available IDA during the remaining project period. The budget and funds flow for the project has been satisfactory with the budget for the year 2008-09 being Rs. 720 million.

13. Financial Management: Considerable transmission delays of state financial reports have major consequences on timely IDA reimbursement of expenditure incurred by the project by states. These state financial reports should also be revised as they currently include procurement at district level, which is not allowed for reimbursement as per the agreed DIR Joint Action Plan. To ensure that segregated financial information for actual eligible expenditure incurred during a period, it was agreed that by February 28, 2009 the CSU will a) revise the financial report to segregate state and district level expenditure b) fix timelines for submission of financial information from districts to states and states to districts and monitor the compliance; and c) arrange financial management training for FM staff at states.

14. Audit: The project has shared acceptable audit reports of 21 states/territories for FY 2007-08 while the audit reports of the CSU with project financial statements and 14 states/territories, or the confirmation of nil expenditure by these entities are still pending. Bank will have to discontinue the disbursement for these states/territories if the reports/confirmations are not received by January 31, 2009. The project is also expected to prepare and submit for 2007-08, consolidated statement of audited expenditure, summary of audit observations and reconciliation statement of audited expenditure with that reported in the reimbursement claims. Details of financial management are presented in Annex 5.

### **Procurement**

15. The progress on procurement continues to be slow and the decision making requires acceleration to complete remaining contracts planned under the project. It is important to complete the census of equipment supplied to phase I states. The post reviews found many deviations from agreed procurement arrangements and the CSU needs to closely monitor the procurement to be handled at SSU level through regular state visits by the procurement consultant. There is a need to increase disclosure of procurement related information. It was agreed that the project procurement team would be strengthened with one more consultant. More details about the progress on procurement are available in Annex 4.

## Safeguards

16. **Community Involvement in Disease Surveillance:** The review team is pleased to note innovative approaches to involve communities in disease surveillance, such as using key community informants for reporting outbreaks in hard to reach villages, cell phone SMS for prompt reporting of surveillance information, and the involvement of “sector welfare committees” to create greater public awareness to report outbreaks . Pilot activities for increased involvement of tribal communities in disease surveillance in two tribal blocks in each of Orissa, Karnataka and Maharashtra have started. To promote general public awareness and promote community surveillance, the project is currently working on a IEC strategy, which will also include innovations to involve private health care providers, and which will be finalized over the next months. CSU also agreed to document how IDSP activities and innovations benefited tribal populations. Further details are presented in Annex 3.

17. **Bio-medical Waste Management (BWM):** With the finalization of action plan for strengthening of laboratory services in IDSP, the BWM will require focused attention. It was agreed that the Standard Operating Procedures for the 50 priority district laboratories will include BWM guidelines recommended by GOI and the training program for the new microbiologists will have earmarked sessions covering these aspects. The proposed checklist for assessing the referral laboratories and the memoranda of understanding for participation in the project as referral laboratories will include compliance with the BWM as an essential requirement. The periodic visits by the laboratory coordinators from the central and state surveillance units will review the BWM practices and share a quarterly report on BWM compliance with the Bank.

## Status of Key Performance Indicators

Table 1. Status of agreed Outcomes Indicators						
Indicators	Measurement					
	Baseline Value		Progress To Date		End-of-Project Target Value	
	Number or text	Date	Number or text	Date	Number or text	Date
1. Number and % of districts providing monthly surveillance reports on time	93 districts included in National Surveillance Program for Communicable Diseases	10/26/2004	60% of all districts (365 out of 606) generated weekly surveillance reports for the week ending 28 December 2008 mainly from primary health care facilities. Phase I: 95% (202/212) Phase II: 76% (143/189) Phase III: 10% (20/205)	12/28/2008	>50% of the districts providing monthly surveillance reports on time	03/31/2010
2. Number and % of districts in which private providers are contributing to disease information	None	10/26/2004	142 districts out of 401 districts covered in Phase I and II (35%) have identified reporting units in private sector and 100 (70%) of them reported from private sector in the week ending December 28, 2008	12/28/2008	at least 50% of reporting districts	03/31/2010
3. Number and % of laboratories providing adequate quality of information	None	04/04/2006	Around 70% of the districts covered in Phase I and II states are reporting data from laboratories but the quality is highly variable.	12/28/2008	>75%	03/31/2010
4. Number and % responses to disease-specific triggers assessed to be adequate	Not existing	10/26/2004	Weekly outbreak reporting started from September 2007 and 31 states reported 553 outbreaks during 2008 and most of the outbreaks were investigated by District RRTs. The laboratory confirmation improved from 9% in the first half of the year to 28% during the second half.	12/28/2008	>75%	03/31/2010

**Table 2. Status of agreed Intermediate Outcomes Indicators**

Indicators	Measurement					
	Baseline Value		Progress To Date		End-of-Project Target Value	
	Number or text	Date	Number or text	Date	Number or text	Date
1. IT software developed and operating through the national network established for the project	No software and networking	10/26/2004	The new software is now available on the IDSP portal and on-line data entry being done by some districts in 17 states .  IT hardware supplied to 796 locations and installed in 760 Connectivity established at 623 locations through Broadband and 275 through and satellite.	31/1/2009	National IT network established for Integrated Disease Surveillance	03/31/2010
2. Number of state surveillance units established with adequate staff, IT hardware, linked to national network	Not applicable	10/26/2004	All 23 phase I and II states have established state surveillance units. 544 data managers have been appointed at state and district levels.  445 district/state surveillance units fully functional with human resources, ICT tools and Broadband connectivity.	31/1/2009	All major states of India will have state surveillance units	03/31/2010
3. Number of staff trained in disease surveillance epidemiology and outbreak investigation	Not applicable	10/26/2004	2,071 members of district and state surveillance teams, 24,220 medical officers, 137,566 health workers and 8,315 lab technicians received training in disease surveillance.  136 district surveillance officers were trained in the new two week field epidemiology program.	31/1/2009	2500	03/31/2010



Component	Rating	Actions	By When
<b>Overall</b>	<b>MU</b>	<ol style="list-style-type: none"> <li>1. MOHFW will seek restructuring and a two year extension for the project.</li> <li>2. MOHFW will communicate with CDC and WHO expressing interest to continue and further strengthen ongoing partnership to improve India's compliance with IHR 2005.</li> <li>3. MOHFW will review rules applicable under externally aided projects and provide appropriate delegation of authority to Project Director to effectively implement the project.</li> </ol>	<p>March 2, 2009</p> <p>March 2, 2009</p> <p>July 2,2009</p>
<b>Component 1. Establish and Operate a Central –level Disease Surveillance Unit</b>	<b>MS</b>	<ol style="list-style-type: none"> <li>4. Identify 4-6 states for demonstrating full range of core surveillance accomplishments</li> <li>5. Prepares an updated implementation plan for the project restructuring</li> <li>6. Monitor the quality and timeliness of outbreak investigations using the competency assessment tool in the enhanced focus states covering at least 5% of outbreaks</li> </ol>	<p>Immediate</p> <p>March 23, 2009</p> <p>July 2, 2009</p>
Strengthening data quality, analysis and links to action (Information Technology)	<b>MS</b>	<ol style="list-style-type: none"> <li>7. Ensure ways of efficient data transfer using new forms including the option of SMS reporting of the outbreaks and S form based on a feasibility assessment in AP.</li> <li>8. Initiate actions for optimizing the use of IDSP portal including the design changes, training requirements, software updates and data warehousing which will determine the future role of NIC in the program and subsequent amendments in the TORs accordingly;</li> <li>9. Initiate actions to increase access to 1075- toll free services to private health providers and pilot feasible approach to reporting from general community.</li> </ol>	<p>July 2, 2009</p>
<b>Component 3. Improve laboratory support</b>	<b>US</b>	<ol style="list-style-type: none"> <li>10. CSU will develop training modules for microbiologists focusing on Standard Operating procedures including BWM and EQAS aspects and organize the training</li> <li>11. CSU will ensure participation of 4 microbiologists for the Rapid Test training at CDC scheduled in April 2009</li> <li>12. Six states to finalize the state specific laboratory plans</li> </ol>	<p>May 30,2009</p> <p>April , 2009</p> <p>May 30, 2009</p>
NCD risk factor surveys	<b>MS</b>	<ol style="list-style-type: none"> <li>13. NIMS to update the state reports based on the feedback received</li> <li>14. CSU in partnership with the NCD cell of MOHFW will organize dissemination seminars at National and State levels</li> </ol>	<p>March 31, 2009</p>
<b>Component 4: Training for Disease Surveillance and Action</b>	<b>S</b>	<ol style="list-style-type: none"> <li>15. Prepare a revised training plan</li> <li>16. CSU will organize competency based training for the new staff, to be followed by regular contact sessions and mentoring</li> <li>17. CSU with the help of BJ medical college will replicate the one week FETP for the medical colleges in 6 identified states</li> </ol>	<p>March 15, 2009</p> <p>July 2, 2009</p>
<b>Avian Influenza : Human Health</b>	<b>MS</b>	<ol style="list-style-type: none"> <li>18. NICD to implement the Seasonal Influenza Surveillance plan</li> <li>19. Establish a mechanism of quarterly meetings with DHR network to sustain effective coordination.</li> </ol>	<p>July 2, 2009</p>
<b>Financial</b>	<b>MS</b>	<ol style="list-style-type: none"> <li>20. CSU will share pending audit reports for 2007-08</li> </ol>	<p>Immediate</p>

<b>Management</b>		21. arrange financial management training for FM staff at states	February 28, 2009
<b>Safe Guards</b>	<b>MS</b>	22. CSU will finalize the IEC strategy and action plan; 23. CSU will document how IDSP activities and innovations benefited tribal populations by compiling common disease patterns among tribal populations from the existing studies, pilots in Karnataka Maharashtra and Orissa, and IDSP data. 24. Standard Operating Procedures for the 50 priority district laboratories will include BWM guidelines recommended by GOI and the training program for the new microbiologists will have earmarked sessions covering these aspects	April 31, 2008 July 31, 2009

**Detailed Implementation Progress  
Part I: Integrated Disease Surveillance Project**

**Component 1: Establish and Operate a Central-level Disease Surveillance Unit (CSU):**

1. The Central Surveillance Unit (CSU) in the National Institute for Communicable Diseases (NICD) has the critical role of providing strong technical leadership for the program, helping to evolve a broader vision on how a well functioning surveillance system can support national policies and strategies for prevention and control of communicable diseases and assess the impact of ongoing disease operations. To accomplish these broad objectives, the CSU is responsible for providing strategic leadership in assuring technically sound and operationally feasible approaches for disease surveillance covering human resources, laboratory capacity, information and communication technology (ICT) tools, and training necessary for project implementation at the central state and district levels.
2. While the IDSP has made notable progress to put in place infrastructure for surveillance preparedness including the ICT tools, the overarching need for the CSU at this point in the project is to document the public health utility of IDSP for India. This involves a move from the current role of primarily supporting and monitoring provision of surveillance infra-structure, to providing leadership in using this infrastructure for meaningful data analysis at local levels, to assure that the country is effectively detecting, investigating, and responding to outbreaks.
3. Since the last mission, several activities have been undertaken to accelerate such strategic shift towards data analysis and use. Additional professional staffs with epidemiologic and microbiologic expertise have joined the CSU, and the Project Director and the National Program Officer (NPO) believe that IDSP should draw on expertise from throughout NICD. The 494 epidemiologists, who have been recruited under NHRM should provide analytic capacity at the state and district levels to work with the CSU in detecting, investigating, and responding to outbreaks. The CSU has obtained approvals for the revised P and L forms from the NRHM which will focus on clinical and laboratory confirmed cases.
4. IDSP now has a functioning data entry and analysis portal and the routine data collected after August 2008 are available for analysis at the state and CSU level. A preliminary analysis of the Laboratory (L2 form) data from 3 states documented substantial numbers of cases of laboratory diagnosed typhoid, cholera, and dengue, permitting further analysis of these more specific cases.
5. From September 2007 the CSU has successfully put in place a system that captures outbreaks reported by DSUs and SSU as well as the outbreaks identified by the toll free call center and media scanning center. While tools to improve outbreak detection are now operational, they require further improvements. The CSU has undertaken an analysis of data available on the 553 outbreaks reported by IDSP in 2008. The outbreak reporting data provide a crude measure of relative completeness of outbreak reporting by comparing number of outbreaks per unit population reported by different states. The review team is pleased to note that the proportion of outbreaks in which state or district investigators sought laboratory confirmation of the causative agent is gradually increasing. As noted under training, an outbreak investigation training module has been developed and pilot tested by WHO with community medicine residents. This module included an assessment tool to evaluate the quality of trainee outbreak

investigations and can be very useful for training the Rapid Response Teams (RRTs) and assessing the quality of outbreak investigations by the CSU.

6. In order to implement the focused strategic vision for IDSP under the proposed project restructuring, it was agreed that the CSU will play three critical roles: first, assuring surveillance preparedness; second, improving completeness of outbreak detection and timeliness of investigation; and third, demonstrating quality data collation, analysis and assessing analytic quality of outbreak investigations.

7. *Assuring surveillance preparedness:* In addition to the personnel inputs noted above, CSU needs to focus on the following actions to assure surveillance preparedness:

- **Enhancing the quality and frequency of use of communication networks;** regular video conferencing is being now held with states to discuss outbreaks and control measures, but improvement in quality (several observed sessions had impaired audio quality) and frequency of utilization of this tool is needed. For the 4-6 enhanced focus states, CSU should be monitoring outbreak investigation frequency, availability and utilization of laboratory confirmation. Further training for district epidemiologists and data managers on use of the **portal** (and confirming and enhancing portal functioning) will provide needed **analytic capacity at the district level**.
- The progress in **urban surveillance** pilots and involvement of **infectious disease hospitals** in disease surveillance continues to be slow. It may be appropriate to streamline the communication and reporting tools from these locations and focus on developing a sentinel hospital system which could be one of the key components of the proposed core surveillance accomplishments in 4-6 states.
- The CSU has proposed **revisions of the IDSP reporting forms** to improve their operational use and reduce unnecessary overload on the staff. While MOHFW has approved modified P and L form for IDSP, questions are pending on the implementation burden and utility of the S form. CSU needs to plan carefully for an efficient transition to the new forms, including close collaboration with NIC for revision of the portal. The rollout of the new forms to the states and districts should be carefully thought out. It will also be necessary to make strategic decisions about what data from the old forms can be accurately mapped to the new forms, and hence may be worth preserving for access through the portal, versus what data will no longer be consistent with the new forms and could be preserved in data archives.

8. *Improving completeness of outbreak detection and timeliness of investigation :* The CSU should expand the variables collected systematically in the **Outbreak Reporting System** (e.g. source(s) of outbreak detection; laboratory confirmation sought;) and work with NIC to make the “official” system available for data entry and analysis on the portal. (Note: NIC currently supports an outbreak reporting module on the portal, but it is different from the CSU system). CSU should also continuously monitor the data collected by this system, and work with states and districts if the CSU epidemiologists identify evident problems with timeliness of reporting, laboratory confirmation, appropriate interventions, etc.

- **National resources for outbreak detection:** The **1075 call centre** needs to be publicized to health professionals, and could particularly serve as an important supplement in areas where surveillance infra-structure is still under-development. Similarly, the media scanning service should be useful for all states, but may be particularly important as a supplement in areas where surveillance infra-structure is still under-development. It was noted that the central media scanning unit is reporting both outbreaks, and media reports of health interventions. For the purposes of IDSP, the

center should report numbers of these two categories separately. Also, states and districts, as they follow up on media reports of outbreaks, should record whether 1) the report is a real outbreak 2) whether they were already aware of the outbreak from regular IDSP notification.

- The CSU should establish real time collaboration modalities between the newly recruited epidemiologists and National/State Microbiologists/state laboratory coordinators.

9. Demonstrating quality data analysis and assessing analytic quality of outbreak investigations:

- CSU epidemiologists should formally review a sample of outbreaks reported—the assessment tool created for the outbreak investigation module may be adaptable for this purpose.
- CSU epidemiologists should undertake analyses of IDSP data to better understand data contained in the system. Exploratory analyses should use conditions with reasonably specific case definitions—either lab confirmed, or clinically distinctive. Targeting enhanced focus states where reporting is relatively consistent and complete would be useful for such analyses which could be directed to reporting unit or block level.
- Effective communication of key findings and issues to IDSP sub-units, state and national policy leaders, and as appropriate, to the public. To facilitate this, the NICD requires support from experts in disciplines like communications, economics and public policy.
- Interesting and/or especially well conducted outbreak investigations should be actively sought and used as models—e.g. through write-ups in IDSP bulletins, presentations on teaching video-conferences, and/or as part of the periodic meetings of the SSUs.

**Agreed Actions:**

*(i) IDSP, CSU will immediately start monitoring the quality and timeliness of outbreak investigations using the competency assessment tool in the enhanced focus states covering at least 5% of outbreaks; and*

*By July 31, 2009, (ii) IDSP CSU will make urban surveillance and Infectious Diseases Hospital reporting fully functional using them as sentinel sites; and ensure ways of efficient data transfer using new forms including the option of SMS reporting of the S form; and (iii) MOHFW will review rules applicable under externally aided projects and provide appropriate delegation of authority to Project Director to effectively implement the project.*

**Strengthening data quality, analysis and links to action:**

10. The IDSP and the National Informatics Center (NIC) needs to be commended for establishment of a nation-wide Information Communication Technology (ICT) network which enables rapid transmission and analysis of data as well as communications related to disease surveillance. However, the utilization of this network is still not optimal. With the training of data managers some improvement in analysis at district level noted. However, as mentioned earlier, limited capacities for data quality assessment and analysis for action still remain areas of serious concern. The recent recruitment of epidemiologists for districts and states and the new 2 week field epidemiology training are expected to address this concern.

11. Networking for data transmission, video conferencing and e-learning: To strengthen the transmission of data, IDSP has established linkages with State and District Head Quarters, and all Government Medical Colleges on a Satellite and Broadband Network. 275 such sites now have satellite connectivity provided by the Indian Space Research Organization (ISRO) and 623 sites

have broadband connectivity. Over 500 Data Managers (DM) and Data Entry Operators (DEO) were recruited to operate satellite/broadband based Video Conferencing (VC); co-ordinate collection of data from reporting units; collate and analyze data for generating early warning signals; record and document outbreaks; generate periodic reports and support ICT systems in District and State Surveillance Units.

12. The IDSP Portal ( [www.idsp.nic.in](http://www.idsp.nic.in)): The recently developed IDSP portal allows data entry, query, analysis with graphs and report generation. It also serves as a repository for on-line IT training modules and makes other information resources related to disease surveillance available for all IDSP staff. This portal is being used by the IDSP staff for data entry and around 17 states are now entering the data on-line. During 2008, the IDSP data managers and data entry operators were trained intensively for enhancing their competencies in data entry, analysis and transmission of surveillance data in time. However, interactions with states and observations during field visits suggest that there are frequent problems with accessibility, connectivity and competency of staff and as result the full benefits of such improvements could not be accrued. Also, the portal needs to update the reporting formats incorporating the recent changes approved, and including outbreak reports supporting the CSU system. Incorporating mapping capacity at least to the reporting unit level is also a needed analytic tool.

13. Video Conferencing (VC): The review is pleased to note that the VC facilities are now in place and from October 2008, the CSU is regularly using this facility to communicate with districts using a weekly schedule. However, the review team was informed that for communicating with the districts, the states use an internet based video conferencing (Inter-wise) using NIC's e-learning portal (<http://e-learning.nic.in/lms>). This allows unlimited audio connectivity but the video at any point will be limited to 5 sites. Field testing during the site visits showed very poor audio quality which requires improvement.

14. Toll Free Call Centre: The IDSP has made a 24X7 call centre with multiple language calling and answering capabilities functional with a toll free number 1075 to receive disease alerts from health personnel located anywhere in the country. The call centre has a response mechanism that informs surveillance officers to verify the report and initiate appropriate public health measures. In 2008 the call centre received 26,745 calls, but only 68 were health alerts and 7 actually helped in identifying the outbreaks. During the field visits, connectivity problems were also noticed. Thus, the use of the toll free call centre so far remains limited. It is critical to resolve the technical issues and evolve a clear strategy to enhance the use of such tool for SOS reporting by health professionals. It is also important to explore the possibility of segregating the information from health providers and general public.

15. Media Scanning and Verification Cell: The CSU has established a systematic media-scanning and verification mechanism to support outbreak detection. National and major state electronic, broadcast, and print media are monitored; findings evaluated and referred to SSU and DSU if a disease outbreak appears to be mentioned. The Mission noted that several states are undertaking scanning of local media, including vernacular media. Systematically linking the Central media-scanning cell with local media scanning efforts where they exist and promoting local media scanning efforts where they do not exist, will provide an extended information network to support an additional route for outbreak identification.

**Agreed Actions:**

*By 30 June 2009, NICD will: i) develop a flow diagram which clearly reflects the data flow for in IDSP including urgent reports in IDSP through telephone, e-mail and fax; (ii) Complete a*

*feasibility assessment for scaling up Andhra Pradesh SMS pilot; (iii) Initiate actions for optimizing the use of IDSP portal including the design changes, training requirements, software updates and data warehousing; and (iv) initiate actions to increase access to 1075- toll free services to private health providers and pilot feasible approach to reporting from general community.*

## **Component 2: Integrate and Strengthen Disease Surveillance at State and District Levels**

16. All phase I and II states and most of the phase III states now have established State Surveillance Units (SSU) headed by an officer from state health department and most of them are sharing weekly surveillance reports with the centre. A total of 553 outbreaks were reported in 2008. The state performance, however, was uneven with two thirds of the outbreaks (66%) being reported by six states (Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, West Bengal and Uttar Pradesh) and the states of Jammu and Kashmir and Jharkhand not reporting even one outbreak throughout the year. On an average, 9-10 outbreaks have been reported in a week and a majority of them were epidemiologically investigated by District Rapid response Teams. A few outbreaks were investigated by the state Rapid Response Teams (5) and central surveillance unit (2). The review team is pleased to note the progress made by some states in laboratory confirmation of outbreaks. During the last quarter of 2008, Haryana, Chandigarh, Rajasthan, and Goa had laboratory confirmation for all reported outbreaks. During the same period, Maharashtra had 100% sample testing with 50% laboratory confirmation while between half to two thirds of outbreaks reported in Tamil Nadu, Andhra Pradesh, Uttarakhand and West Bengal had samples collected and around a half of them had laboratory confirmation of the cause. District Surveillance Unit (DSU) has been established in all 401 districts included in the project from the Phase I and II states. More than half of the phase III states have also established DSUs. Between 60 to 70 % of sub centers, 70 to 75 % of PHCs and, 40 to 75% of different hospitals are now reporting from the districts covered under phase I & II states.

17. The biggest challenge for IDSP continues to be the frequent turn-over of the state and district surveillance officers. Even where these officers are available, they usually have multiple responsibilities and generally do not have public health or epidemiology training (except in states of Tamil Nadu, Maharashtra and Gujarat) which limits their effectiveness in analyzing the surveillance data, monitoring quality and taking appropriate action. Other constraints include frequent turnover of contractual staff due to higher remuneration offered by other health projects and outside, and lack of adequate mobility support. Online training of the data managers in recent months has addressed some of these problems to certain extent, and the states now monitor the compliance of different reporting units in each district. The major part of the data being generated still continues to be from the public sector primary health care facilities. The review team is pleased to note that sub-district, district and medical College and Private hospitals (mainly inpatient and around 25% out patient) have started reporting from April 2008 in the states of Gujarat, Karnataka, Tamil Nadu, Uttarakhand, Punjab and Haryana. However, most of the information reported by these facilities still remains in the form of syndromes contrary to the expectation of capturing probable and laboratory confirmed cases. Finally, field visits suggest that SSUs and DSUs are not yet sufficiently involving the existing laboratory networks, missing a huge opportunity to obtain information on lab confirmed cases. Such poor quality information reflects weak monitoring and lack of regular feedback to districts and facilities. The private sector participation continues to be low with only 113 out of 298 private facilities in about 100 districts reporting some data.

### ***Agreed actions:***

*By March 31, 2009 select 4-6 states based on their past performance and willingness to start implementation of full package of IDSP focusing on quality outbreak investigation; and develop a innovative strategy for involving the private health providers through toll free communication, e-mails and active involvement of professional associations.*

18. **Urban Surveillance:** In urban areas, the IDSP envisaged implementing sentinel surveillance involving urban health centers, public hospitals, private sector (practitioners, hospitals and laboratories), infectious disease hospitals, and medical colleges. The responsibility for implementing surveillance activities was to remain with the Municipal corporations in case of larger cities. In February 2008, the IDSP had a consultation to develop detailed plans for piloting the urban surveillance in 3 metropolitan cities (Mumbai, Kolkata and Chennai). Accordingly Memoranda of Understanding were signed with Municipal Corporation of Greater Mumbai, Kolkata Municipal Corporation and Chennai Corporation. Funds were released to Kolkata Municipal Corporation in March 2008 and the corporation is reporting in P and L form (pre-revised) from all 15 Burroughs every week since August 2008. Funds are being released to Chennai Corporation while funds released to Mumbai could not be used as the corporation was not able to establish acceptable funds flow arrangements. Cities like Ahmedabad, Bangalore, Hyderabad and Chandigarh have taken initiative on their own and are implementing surveillance activities. It is important to provide some further guidance to SSUs and DSUs on how to establish operational and communication linkages with the existing surveillance systems in municipalities.

19. **Infectious Diseases (ID) Hospital Surveillance:** Based on the successful operational research undertaken by WHO, IDSP planned for a separate network of infectious communicable disease hospitals. For this, a comprehensive database of over 50 ID hospitals in the country providing required information (location, bed strength, contact details, authority, lab service and operational status) was created. Based on standard criteria, seven hospitals<sup>3</sup> among them were short listed and a new network named INSUNET (Infectious Disease Hospital Surveillance Network) was established.

20. The total cost budgeted for the first year of operation was Rs. 17, 68,000/- per hospital. The first installment of Rs. 7, 71,400/- was released to each of these hospitals through the respective state health society. A meeting with these 7 hospitals was held in Delhi on 28 November 2008 to finalize detailed action plans. A composite training of trainers for these ID hospitals is planned at ID Hospital Delhi in early February 2009 and an operational target of 1 April 2009 has been fixed for regular reporting of IDSP in P and L form. The CD Hospital Chennai is already reporting weekly data in P and L form (pre-revised) and other hospitals have been advised to start reporting data in the new P and L form pending completion of training in their hospitals immediately.

**Agreed Actions:**

*By April 1, 2009, all 7 ID hospitals will start implementation of IDSP and Urban surveillance in Chennai, Mumbai and Delhi.*

21. **Community Involvement in Disease Surveillance:** IDSP clearly aims to involve communities in disease surveillance in an effective manner, steps to achieve which have been

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<sup>3</sup> (1) Kasturba Hospital, Mumbai; (2) Communicable Diseases Hospital, Chennai; (3) Sir Ronald Ross Tropical and Infectious Disease Hospital, Hyderabad; (4) Infectious Diseases Hospital, Delhi; (5) Belegghata General and Infectious Disease Hospital, Kolkata, Infectious Disease Hospital, Ahmadabad, Infectious Disease Hospital, Bangalore.



well laid down in the Section-25 of the Project Implementation Plan (PIP). The review team is pleased to note that states like Orissa, Karnataka, Maharashtra and Andhra Pradesh and Union territory of Chandigarh have started taking important preliminary steps towards setting in motion community surveillance processes. Chandigarh has started working with the 'Sector Welfare Committees' through Federation of Sector Welfare Associations. The representatives have been oriented and started reporting in an agreed format. They also participate in identifying mosquito breeding places and control measures. Andhra Pradesh is piloting the use of SMS technology to rapidly transmit surveillance data from areas predominated by tribal populations. In Karnataka, 2 blocks of Chamrajnagar districts have been identified for involving NGOs and elected local representatives. Orissa too has identified 2 blocks of Koraput district, had a stakeholder meeting on 16 January 2009 and an action plan is being finalized by the district. Maharashtra has also identified 2 blocks of Nandurbar district and had preliminary discussions to initiate community based surveillance. These initiatives will have to be closely observed and replicated in other states on the basis of lessons learnt. For example, Mumbai could learn from Chandigarh and involve the cooperative housing societies and their federations in the disease surveillance process.

22. **Tribal Action Plan:** IDSP is universally targeted covering all populations cutting across states, geographical regions, linguistic and ethnic groups including tribal communities. However, keeping in view, the special needs of the tribal populations and poor access to the public health care system due to their unique socio-economic conditions and physical locations, IDSP has laid down a Strategy for Tribal Populations (Section-28 of the PIP), to enhance positive project impact on the tribal people. The review team noted that some benefits from IDSP are already reaching the tribal communities and strongly recommends the CSU to segregate the data and document how and where IDSP has benefited tribal communities. So far, Andhra Pradesh has focused on identified 8,500 community health workers through Integrated Tribal Development Agency to undertake surveillance in the tribal area. The districts selected for undertaking the community surveillance activity will have significant tribal populations, and will therefore provide a platform for implementing the applicable components of the strategy for tribal people on a pilot basis.

**Agreed Actions:**

*The CSU (a) by April 31, 2008 will finalize the IEC strategy and action plan; and (b) by July 31, 2009 will document how IDSP activities and innovations benefited tribal populations by compiling common disease patterns among tribal populations from the existing studies, pilots in Karnataka Maharashtra and Orissa, and IDSP data.*

23. **Surveys for Risk Factors for Non Communicable Diseases:** Preliminary findings of the first round of surveys were shared by the Indian Council of Medical Research (ICMR) and the National Institute for Medical Statistics (NIMS) functioned as the nodal agency. The data collection was carried out by state survey agencies identified by the states and agencies which had past experience in similar surveys were contracted by the ICMR to monitor the quality. The review team commends the effort that has gone in to completing these surveys, especially the role played by the NIMS to undertake the responsibility of centralized analysis and developing a uniform format for the state reports. Though these surveys were planned to cover all 9 phase I states in the first round, due to operational reasons they could be carried out only in 7 states and the reports of 6 states (Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttarakhand) were shared with the mission. The report of Mizoram is being finalized.

24. The most striking observation from the report was that only around a third of the adult population surveyed had Normal blood pressure measurement. While 45% are categorized into

'pre hypertension' group, another 15% were found to be in Stage -1 of hypertension with the remaining 5-6% in Stage -2. In other words, the problem of 'visible' hypertension is about 20% while 45% are 'at risk' [pre hypertension category] which requires urgent attention by the policy makers. One out of every six persons in the population surveyed is either overweight or obese, constituting a large high risk group for NCD. About 2% of the sampled individuals reported to have 'elevated' blood sugar values and about a fifth of them were taking insulin to control the problem. It should be remembered that these are self reported figures for diagnosed diabetes and there undoubtedly are more with elevated blood glucose who are not aware of their blood glucose status. This suggests the urgent need to include the measurement of blood glucose in the future surveys.

25. Based on the discussions and closer study of the State reports shared, the following issues have been identified which require attention by the NIMR while finalizing the reports:

- The survey protocol ensures a minimum coverage of 280 individuals in each of the age group, sex from the urban as well as the rural areas in each State. It was noted that in 51 out of 120 such groups, the coverage fell far below this minimum sample size. This results in lowered efficiency of the estimates that the original study design has envisaged.
- The Survey protocol includes independent assessment of 10% of the Primary Sampling Units and 50% of the House Holds (HH) covered earlier by the State teams by the Regional Centers to ensure the quality of the data. The findings of these survey quality results are not presented in the state Reports. This aspect has to be included without fail.
- The State reports just present the results of the data analyzed with no discussion or comparisons with any of the earlier studies conducted in these States.
- The reports provide the 95% Confidence Intervals [CI] of the measures of the Central Tendency [mean values or percentages]. Some of the important indicators like the BMI categories and high risk behaviors have not been provided with these CIs. It is suggested to include Standard Deviation [SD] for some of the results rather than providing the 95% CI values.
- Sub classification of the samples size into different categories has resulted in very small numbers within each of these sub-groups. It is suggested that NO attempts be made to calculate either the SD or 95% CIs if there are, say, less than 10 subjects in any of such sub-groups. Appropriate footnotes should be included in such situations.
- All figures in the Tables need to be doubly checked for correctness before the Reports are finalized and submitted for circulation.
- The study collected data on household assets which need further analysis by building an asset index and studying the distribution of the risk factors by asset groups which are known to have a direct bearing on the NCD risk factors and help development of relevant policies.

26. As agreed, the CSU has initiated the bidding process following the Bank procedures for selection of appropriate agencies to undertake NCD risk factor surveys for phase II & III states. The advertisement of Expression of interest (EOI) in 12 states has been published. To ensure standardization in data collection, analysis and reporting the IDSP will require a National Nodal Agency. It was agreed that such agency will be identified by March 2009 and will be involved in the selection and training of the state survey agencies.

***Agreed actions:***

*By March 31, 2009, NIMS will updated the state reports based on the feedback received and CSU in partnership with NCD cell of MOHFW will organize dissemination seminars at National and State levels. By April 30, 2009 NICD to finalize the selection of survey agency for conducting the survey which includes Blood Glucose estimations in 12 states of Phase II and agencies start collection of data.*

### **Component 3: Improve Laboratory Support**

27. In order to allow rapid and reliable laboratory confirmation of causative agent and to improve the quality of laboratory data, IDSP aimed to support a five level laboratory network<sup>4</sup>. Baseline surveys of laboratories in Phase I and II states revealed that most districts did not have adequate staff, especially microbiologists. While bio-medical waste management practices were inadequate, district labs testing clinical samples had limited capacity to diagnose epidemic prone diseases. Consequently, it was decided not to further supply the equipment envisaged under the project for Phase II and III states. So far 8,150 laboratory technicians received IDSP training.

28. Further implementation experiences have proven that the laboratory component would not be able to meet the critical IDSP requirement of rapid and reliable confirmation of the disease agent causing an outbreak. It was agreed during mid-term review (January-June 2008) to drastically recast the laboratory strengthening component, orienting it more towards some basic and feasible actions listed below to achieve the project objective:

- IDSP will not support any further inputs for peripheral laboratories and microscopy centers as these are being strengthened by disease specific programs;
- Only 50 model district public health laboratories will be supported under the project (equipment, staffing and training). Where the state has no dedicated public health laboratory, a clinical lab attached to a district hospital will be selected;
- Services of existing functional laboratories will be used to create a network of reference laboratories to allow access to quality public health laboratory services for the remaining districts; an output based arrangement will be used for involving these labs in disease surveillance;
- National Reference Laboratories will provide support for disease specific requirements like virus isolation, sero-typing etc. and will start playing an active role in promoting quality assurance and test kit standards.

29. Consequently, three actions were agreed in June 2008. Progress in these actions has been slower than expected and most of the agreed outputs could not be reached:

- First of all, it was agreed that IDSP would finalize and implement the strategic plan for laboratory strengthening and networking by August 2008. The IDSP, to its credit, did organize a brainstorming session involving experts from WHO, ICMR, States and technical experts. So far a broad strategy and draft memorandum of understanding have been approved by the MOHFW.
- Secondly, by the end of October 2008, IDSP would have organized several regional workshops for the states to discuss the concept of referral labs and to finalize the mapping exercise in order to link all districts to these labs. So far, one regional workshop was organized, attended by senior representatives from five states and resulted in the submission of draft laboratory action plans by three states.

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<sup>4</sup> This network includes: Peripheral Laboratories and Microscopic Centers (L1 labs); District Public Health Laboratories (L2 Labs); Disease Specific State Laboratory (L3 Labs); Regional Laboratories (L4 Labs) and National Reference Laboratories (L5 Labs).

- Finally, it was agreed that by December 2008 the assessment of the quality and use of equipment supplied to Phase I states would be finalized. The final RFP for this assessment contract was submitted to the World Bank for Non-Objection on January 20, 2009 and this study may probably start only in March 2009.

30. Despite these handicaps, the review team is pleased to note some progress in laboratory strengthening component during the past three months. The laboratory unit at the CSU has been strengthened with a full time microbiologist and one microbiology consultant. This team under the guidance of Dr. Ichhpujani, head of laboratory services in NICD has prepared a draft model for district laboratories based on Indian Public Health Standards (IPHS), on which basis the states have carried out a needs assessment for the identified 50 priority district public health laboratories. The Bank has given its no objection to state level procurement of equipment and consumables on October 10, 2008 and the IDSP will now need to send out the necessary authorizations to the States beginning of February. With the support from the National Health Systems Resource Centre, the CSU has also selected 85 microbiologists in consultation with states who will be given appointment by the states. The IDSP/NICD, with support from WHO, has undertaken an assessment of quality of diagnostic kits for Leptospirosis and Dengue.

31. Field visits and discussions at state and central level have revealed some outstanding issues. Integration of the laboratory component with the other components of IDSP needs to be reinforced. Laboratory confirmation of outbreaks has improved over the year (from 9% in the first quarter to 27.8% in the last six months), but leaves further scope for improvement. Though few states have dedicated public health labs, the services of these labs are still mostly limited for water analysis. Overall, guidelines on sample collection, transportation and handling are not yet developed while supply at district/sub-district level for specimen collection, transport, referral and documentation is not provided. This is especially important for the transportation of stool samples. Due to the absence of standardized testing for typhoid, many labs are still using the Widal test, which might have led to overestimation of Typhoid in L form reporting.

32. These and other issues were discussed during intensive brainstorming sessions with key specialists and support from WHO, CDC and WB. This resulted in an action plan with realistic timelines for the next months. Overall, the laboratory component will focus on two major strategic choices: i) reinforce the capacity of the 50 priority public health labs all over the country and ii) a strategic focus to develop success in at least five to seven states to develop a referral network by partnering with existing and functioning laboratories. Further expansion of this strategy will depend on the success of the implementation in the selected states and a phased approach will be followed. Both strategic orientations will integrate i) competency based strengthening of human capacities; ii) quality assurance activities including Standard Operating Procedures (SOPs), External Quality Assurance System (EQAS), Bio-medical Waste Management (BWM), guidelines for quality of kits and sample transportation and handling; iii) the provision of linkages with epidemiologists and other components of the program; and iv) all laboratories supported by or involved in IDSP will undertake routine laboratory surveillance. The review mission recommends IDSP to monitor the implementation of this plan very closely. Although the States need the flexibility to plan and implement according to their needs, it is expected that intensive handholding might be needed from CSU. The review therefore recommends to add one more consultant microbiologist to the CSU team.

***Agreed actions:***

The IDSP will ensure participation of four microbiologists for the Rapid Test training of CDC in April 2009 and will implement the laboratory action plan as developed during the review.

Priorities are:

- Finalizing and implementing state specific laboratory plans for at least six states (July 2009);
- Organizing competency based training for the newly recruited microbiologists with emphasis on SOPs and Bio-medical Waste Management Protocols (April-May 2009);
- Finalizing plans for External Quality Assurance System (April 15, 2009).
- Sharing the information on test kit quality with all states and disclose at the IDSP website (April 30, 2009).

**Component 4: Training for Disease Surveillance and Action:**

33. The IDSP has undertaken a lot of training activities and has started the process to sustain some previous innovations. The Training of Trainers (TOT) is now complete for most phase I and II states, while training institutes have been identified for 6 remaining phase III states. TOT has been provided to 2000 trainers. Most of the phase I and II states have also completed the originally planned training of medical officers, health workers and laboratory technicians, while activities have been taking up in Phase 3 states. Detailed progress in IDSP training is presented in the following table:

Progress in training of health staff (cumulative)

	Phase I and II States		Phase III States		Cumulative total (01/09)
	June 2008	Jan 2009	June 2008	Jan 2009	
Medical Officers	22087	23660	-	-	23660
Health Workers	133821	135876	-	1680	137556
Laboratory technician	6176	8152	-	-	8152

34. Following the recommendation of the last mission, the two week Field Epidemiology Training Program has been further developed with support of WHO and CDC. The course aims to provide core epidemiological skills to district surveillance offers. The first week focuses on the surveillance data collection and analysis while the second week is centered around outbreak investigation. A training of trainers program was organized by the CSU and so far 136 district surveillance officers received this training at 4 institutions. A user friendly CD version of this module has been developed and uploaded on the NICD website. NICD/WHO jointly developed an interactive web-based training tool for health officials at district level on IHR (2005) with specific focus on identification, investigation and containment of Public Health Emergencies of International Concern (PHEIC). This training tool could be used by all medical officers involved in surveillance. In addition, the WHO has recently developed a one week module to develop core competencies in outbreak investigation and piloted the model for the staff and students of community medicine at the BJ Medical College (BJMC) in Gujarat. This pilot included one one-week training, followed up by a field assignment and a post-implementation workshop with structured assessment of student performance in an outbreak investigation. Plans are ongoing to institutionalize the course within the community medicine of BJMC and to share the experience with selected medical colleges for further replication. Furthermore, two monthly seminars were organized on topics of public health importance related to the functioning of IDSP. Five very descriptive and pictorial training modules / manuals for IT staff were designed and uploaded on the IDSP and training has been imparted to 415 data managers and data entry operators through VC sessions covering handling, maintenance, and operation of IT equipment and data analysis.

35. IDSP experiences suggest that there is a need for more competency based training, including mentoring components for training programs to ensure on-the-job support. Also, some cadres of staff involved in surveillance activities need special skills. For example, health supervisors in reviewing the weekly syndromic data, limited outbreak investigation and sample collection; members of block program management support unit and pharmacists in data compilation and analysis. During the review, a competency matrix was developed for each of the audience (follow trends, identify clustering, identify outbreak prone diseases, understand transmission to propose recommendations and mentoring). Based on this matrix, the following actions have been agreed during the review:

- Provide competency based induction training for new staff, with a priority for the newly appointed epidemiologists and microbiologists, and on the basis of expected professional competencies, to be followed up with regular contact sessions with mentoring finally resulting in award of degrees
- Train male health supervisors in the health system for on job mentoring of health workers and reviewing the weekly syndromic data, limited outbreak investigation and sample collection;
- Replication of the pilot Field Epidemiology Training Program developed in Gujarat towards other medical colleges and build field epidemiology into the curriculum of MD community medicine through MCI;
- Set up a system of monitoring the performance after all trainings based on simple indicators that match the learning competences;
- IDSP to sponsor sessions on disease surveillance in the annual meetings of epidemiologists and microbiologists at state and national level to promote networking of experts involved in disease surveillance;
- Build a recognized career track for epidemiologists;
- Explore possibilities to collaborate with CDC regarding the training of microbiologists

***Agreed Action:***

*Based on the agreed competency matrix, the IDSP will prepare a revised training plan by March 2009 and will start implementing it from April 2009.*

## Part II Avian Influenza

36. India reported first outbreak of Avian Influenza (AI) in poultry in 3 districts of Gujarat and Maharashtra in February 2006. Since then several AI outbreaks have been reported. So far, India did not report any human case. During January to May 2008, 42 outbreaks of AI in bird population were reported in the states of West Bengal and Tripura after which India has been declared free from Notifiable AI on 4<sup>th</sup> November 2008. However, in December 2008 outbreaks of AI were confirmed in Kamrup, Chirang, Dibrugarh, Barepata, Biogaigon, Nagoan and Baksa districts of Assam and in January 2009 again in Darjeeling and Malda districts of West Bengal. Finally, on January 19, 2009 an AI outbreak has been confirmed in South Sikkim District of Sikkim.

37. The health sub-component of IDSP AI component aided to strengthen and network reference laboratories for prompt confirmation of AI human cases and re-establish Seasonal Influenza surveillance system for India building on the network established by the Department of Health Research (DHR) in partnership with CDC. Active surveillance during outbreaks, prophylaxis for high risk populations with Tamiflu and strengthening of hospital services are financed by GOI.

38. The review team was informed that to a large extent contracts for the laboratory equipment planned under the project have been awarded. However, there were delays in installation and payment which are being addressed. As agreed, the NICD has organized a training program for the laboratory coordinators of the labs included in the AI network in December 2008 where experts from NIV also participated. The participating laboratories strongly recommended centralized procurement and supply of laboratory consumables to ensure consistency and quality as well as timely availability. The expenditures incurred by these labs will only be covering operational costs and payments for contractual staff. It was also agreed that these labs will establish funds flow and reporting arrangements required under the project and will be audited as a part of the CSU.

39. During the mission, a working group has undertaken detailed review of the proposed AI lab network and concluded that the surveillance plan developed by the project adequately addresses the requirements. However, the team recommended that the implementation strategy should take care of some critical operational issues such as (a) strict compliance with the definition of Influenza Like Illness; (b) adequate training of epidemiologists and lab personnel to ensure quality in sample collection, transport and testing; (c) use of standardized testing strategy developed in consultation with National Institute of Virology, Pune and WHO.

### ***Agreed Actions:***

*The Seasonal Influenza Surveillance plan will be reviewed in September 2009 and the NICD will establish a mechanism of quarterly meetings with the DHR network to sustain effective coordination.*

## Procurement

### Status of important Action Points of previous missions

1. Status of important actions from the previous mission is as follows:

Action Point	Status
Submit the findings on the case of possible collusion (fabricated quotations), which was observed during the visit of Karnataka during the last mission	Clarification on action taken has been received from the state and being examined by the Bank
Share the final decision taking out the district level procurement from Bank's financing	Matter under discussion with the Bank
Share the procurement plan for the strengthening of the 50 laboratories	Not yet completed
Share the proposal to set-up two studios with the Bank along with the procurement approach to be used for the same	Not yet completed
Complete the selection process for the agency to conduct a census of all the equipment delivered to the phase I states	Under progress
Complete the selection process for the agency to conduct pre-dispatch inspection of the equipment	Completed

#### *Progress on Procurement of Goods at CSU Level*

2. For Avian Influenza (human health component), procurement of lab equipment totally to Rs.82.80 Million has been completed and equipment totaling to Rs.44.50 Million have been delivered to the labs. Balance equipment will be delivered by March 2009. EPW is initiating the process for inviting fresh tenders for lab equipment totaling to Rs.22.50 Million, while the CSU is procuring items worth Rs.1.6 Million through National Shopping. Pre and post-dispatch inspections are being carried out for lab equipment. The mission expressed concern about the delay in release of payment to equipment suppliers and it was agreed that this matter will be closely monitored by NPO. It was also agreed that the filled-up check lists for the prior review contracts already awarded will be submitted to the Bank by January 30, 2009 so that WBR number could be awarded for these contracts. The proposal for setting up two studios is yet to be shared with the Bank. It was agreed that in case the activity is to be financed from IDSP, the proposal for this activity will be shared with the Bank by January 30, 2009.

3. The mission expressed concerns about the delays in procurement of goods at CSU/EPW and emphasized the need to closely monitor the progress at senior level. The decision making



needs to be accelerated and bottlenecks in the procurement process should be removed. It was agreed that the updated procurement plan for AI-HH and residual IDSP components will be shared by the Bank by January 30, 2009.

*Progress on Procurement of Services at CSU Level*

4. The contract for the agency for conducting the pre-dispatch and post-dispatch inspections has been signed and the assignment is under progress. The RFP documents for three assignments (E-learning, Media scanning and Census of equipment) are under preparation. EOIs have recently been invited for conducting the NCD Survey. There is a need to expedite all these assignments. The mission also discussed the possibility of financing the contracts issued to manpower agencies for providing data managers and data entry operators. It was proposed that after expiry of the ongoing contracts issued by NICS, CSU may issue contracts to these agencies directly, for which a proposal will be shared with the Bank by February 15, 2009. For the ongoing contracts issued by NICS to manpower agencies for providing contractual staff, the Bank will explore the possibility of financing these in case NICS agrees to use standard contract format.

*Progress on Procurement at Decentralized Level*

5. As agreed in the DIR Joint Action Plan, Bank is not financing the procurement undertaken below the state level since April 2008. It was informed by the CSU that the list of items to be procured for strengthening 50 labs under residual IDSP component has been finalized and these are proposed to be procured at the state level. It was agreed that the procurement plan for this component will be shared with the Bank by January 30, 2009.

6. For laboratories involved in AI-HH component also, the lab consumables will be procured at CSU (or state) level to ensure quality as well as standardization. If there are any consumables for which WHO recommends use of a single supplier for quality reasons, the CSU may request the Bank for direct contracting providing justification. In case it is essential to procure the routine items (such as air conditioners, water purifiers etc. which are available under DGS&D rate contracts) required for efficient use of the equipment supplied under the project, waiver to DIR joint action plan will be needed, for which CSU will be required to approach the Bank with necessary justification.

7. During a previous mission, Bank team had observed a case of suspected collusion/fabricated quotations (in Karnataka). This matter was again discussed with CSU and it was agreed that the final report by CSU for this case will be provided latest by February 15, 2009.

*Procurement Staffing/Training*

8. The procurement consultant in the CSU, who is handling procurement through shopping and procurement of consultancy services, is in place. The Deputy Director in the EPW, who is handling procurement above Rs.5 Million in value, has recently completed master level training

in public procurement from ILO, Turin (financed by the project). This is expected to strengthen the procurement capacity in the EPW.

9. The procurement consultant of the CSU visited the states of Rajasthan and Tamil Nadu since the last mission to monitor the state level procurement and to provide necessary training in agreed procurement procedure for IDSP. 2-3 additional states are proposed to be visited during the next 6 months. A presentation on the procurement arrangements for the project was made by the Bank in Hyderabad during the mission, which was attended by SSU officials from 12 states and CSU. The findings from previous procurement post reviews conducted by the Bank were also shared during this meeting.

#### *Procurement Post Review (PPR)*

10. The findings of PPR of the contracts issued during April 2006 to June 2007 were discussed in detail during the mission. The Bank team expressed concerns about the widespread deviations from agreed procurement procedures, which were observed in the PPR. The Bank team was informed that the comments of CSU will be shared by January 25, 2009. The Bank team emphasized that some of the findings are quite serious and in these cases, Bank may use remedial actions available under the legal agreements including declaration of misprocurement, if needed.

11. It was informed by the Bank team that the next PPR (covering the contracts issued during July 2007 to June 2008) is likely to be commissioned by February 2009 and hence CSU may request all the SSU/DSU to keep the documents/files ready. It was decided that the list of post review contracts issued by CSU and states (apart from those already shared) will be shared by the Bank latest by January 30, 2009. In view of the reluctance of the states to share the list of contracts, it is proposed to make it mandatory to attach the list of contracts (upon which the expenditure were incurred) with the fund utilization statement/SOE/FMR to be submitted by states to CSU and by CSU to the Bank.

#### *Other matters*

12. There is a need to disclose the procurement related information (invitation of bids, bid document, contract award notice, request for EOI etc.) on IDSP website. While EPW is publishing the IFB and making available the bid documents on MOHFW website, it is still not disclosing the contract award information. CSU may also ask the states to increase the disclosure of procurement related information (e.g. to put the information pertaining to the award of contracts on website) to the extent possible.

#### *Important Action Points for follow-up*

13. Following are the important action points to be completed till next mission:

<b>Action Point</b>	<b>To be completed by</b>
Submit the filled-up check lists for the prior review contracts already awarded for WBR Number	February 15, 2009
Provide the updated procurement plan for AI-HH and residual IDSP components (for both goods and services) for CSU/EPW level	February 15, 2009
Submit the proposal for directly contracting manpower agencies (which is currently through NICSII) for providing contractual staff	February 15, 2009
Submit the procurement plan for state level procurement for strengthening of 50 Labs	February 15, 2009
Submit the action taken report on suspected collusion/fabricated quotations (in Karnataka)	February 15, 2009
Submit the reply/action taken on the findings of the last post review report	February 15, 2009
Submit the list of post review contracts issued by CSU and states (apart from those already shared) during July 2007-June 2008	February 15, 2009
Improve the disclosure of procurement related information on IDSP and MOHFW websites	Immediate

## **Financial Management**

### **Disbursement**

1. The project has disbursed USD 18.1 million<sup>5</sup> including Special Advance of USD 6.8 million representing disbursement being 24.9% of the signed amount. Considering reimbursement claims of about \$700,000 in pipeline with CAA&A for the period April to September 2008, the disbursement profile would stand at 25.9%.

### **Financial Reporting and Training for FM staff**

2. The project has shared the financial report for the six months period 'April to September 2008<sup>6</sup>. As the information from the states is not received in a timely manner, it was agreed that CSU would issue guidance note on this to states, which would include deadlines for districts and states including timelines. In addition, the states need to be briefed and their reporting formats need to be revised to ensure that the procurement at the district level is excluded when reimbursement of the expenditure incurred is sought from the Bank. In order to ensure the compliances of these matters at the state and district levels, it was agreed that the FM consultants from CSU will organize financial management training for FM staff at SSUs by February 2009. It is also recommended that the finance staff from CSU regularly visit the states in order to provide continuous support.

### **External Audits**

3. For 2007-08, the project has shared audit reports for 22 states and the CSU of which the audit report for Arunachal Pradesh and CSU are considered as unacceptable due to incomplete documentation. The audit reports from the states of Sikkim, Meghalaya and Arunachal Pradesh indicate major internal control weaknesses in the operational controls which need to be urgently addressed. While this issue is being followed up with the CSU through a separate letter, it is recommended that these weaknesses should be addressed in the proposed financial management training for the state staff. Finance staff from CSU should urgently visit these states and appraise the Bank of current status and actions for improvement thereof.

4. The project needs to share the audit reports for the states of Arunachal Pradesh, Nagaland, Tamil Nadu, Andaman & Nicobar Islands, Kerala, West Bengal, Assam, Daman & Diu, Delhi, Uttar Pradesh, Manipur, Bihar, Jammu & Kashmir and Jharkhand, and the audit report of CSU with project financial statements. The CSU was informed that the non receipt of these audit reports by January 31, 2009 by the Bank will result in discontinuation of further disbursement for these states. In addition, CSU needs to prepare and share consolidated statement of audited expenditure under the project and summary of audit observations for the year 2007-08 along with details of follow up taken so far; and reconciliation of audited expenditure for the year with that reported in the reimbursement claims to the Bank.

5. The reconciliation of audited expenditure with reported expenditure in the reimbursement claims up to 2006-07 submitted to the Bank has been finalized and submitted to the Bank. This

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<sup>5</sup> Source: Client Connection dated January 13, 2009 (includes USD 4.09 million disbursed for AI-Animal Component).

<sup>6</sup> This however includes financial information received from 16 states only.

reflects a short claim of Rs. 25.91 million. However, as agreed, the cumulative reconciliation up to 2007-08 needs to be completed and considered in the said calculations before the project can file its claim for the above.

**Avian Flu: Human Component**

6. The mission was informed that 9 laboratories in different states will also be incurring operating expenditure (salaries for contractual staff and revenue expenditure) expenditure in this component of the project for necessary testing and research. These are from government institutions except for Kasturba Medical College in Manipal. To facilitate funds flow and timely reporting it was agreed that each institute will open a separate bank account to receive the project funds, maintain cash book as per the project requirements and send SOEs along with original vouchers, purchase orders and bills every quarter to the CSU. The reimbursement claims to be submitted to the bank will only include the actual expenditure incurred by these laboratories once the original and bills have been received by CSU. Audit of the expenditures incurred by the participating labs will be a part of the IDSP central audit carried out by the C&AG for which CSU will maintain the expenditure records.

**Financial Management arrangements at CSU**

7. The review team acknowledges the inputs provided by the Finance Consultant, NICD which immensely helped in resolving the pending issues, especially reconciliation of audited expenditure with reimbursement claims and the submission of FMRs and reimbursement claims to the Bank.

**Action Plan**

	Action Points for CSU	Timeline
1	Submit pending audit reports for 2007-08 for states of Arunachal Pradesh, Nagaland, Tamil Nadu, Andaman & Nicobar Islands, Kerala, West Bengal, Assam, Daman & Diu, Delhi, Uttar Pradesh, Manipur, Bihar, Jammu & Kashmir and Jharkhand, and the audit report of CSU with project financial statements.	January 31, 2009
2	Submit consolidated statement of audited expenditure for CSU and the SSUs, summary of audit observations for 2007-08 along with details of follow up taken so far; and reconciliation of audited expenditure with the reimbursement claim submitted to the Bank for the year	February 15, 2009
3	Organize FM training for state finance staff on IDSP financial and reporting requirements	February 28, 2009

**Annex 6.**

**India: Integrated Disease Surveillance Project  
Proposed New Project Development Objective (PDO) and Results Framework**

PDO	Outcome Indicators	Use of Outcome information
To support the first phase of India's long run vision to improve and integrate disease surveillance compliant with the IHR 2005 requirement by (a) supporting a nation-wide effort for surveillance preparedness and (b) demonstrating establishment of decentralized surveillance systems meeting performance standards in at least 5 Indian States	(a) Supporting a nation-wide effort for surveillance preparedness <ul style="list-style-type: none"> <li>• % of districts having confirmed at least 2 outbreaks in one year</li> <li>• % of State and district RRT producing at least one outbreak investigation in a quarter</li> </ul> (b) Demonstrating establishment of decentralized surveillance systems <ul style="list-style-type: none"> <li>• % of outbreaks for which laboratory confirmation is available</li> <li>• % of outbreaks reviewed for which quality of response meets at least 50% of expected competency levels</li> </ul>	Review the current strategy and make tactical changes in the program to meet IHR 2005 requirements and improve effectiveness
Intermediate results	Results indicators for each component	Use of Result Monitoring
Surveillance preparedness:	<ul style="list-style-type: none"> <li>• % of districts having full-time epidemiologists</li> <li>• % of districts with fully functional IT systems with on-line data entry and analysis</li> <li>• % of public and selected private facilities with systems in place for SOS reports</li> <li>• % of referral laboratories &amp; priority laboratories undertaking routine laboratory surveillance</li> <li>• % of referral laboratories meeting the EQAS standards</li> </ul>	District level – to make tactical changes to correct operational problems  State and National levels – to make strategic changes in the design to address the systemic problems
Outbreak investigation and Response	<ul style="list-style-type: none"> <li>• % Outbreaks detected by system within one week of first case diagnosis</li> <li>• % Outbreaks/rumors reported by other systems/media verified within 48 hours (documented in electronic register)</li> <li>• % of outbreaks for which adequate specimens reached the laboratory</li> <li>• % of reported outbreaks for which full documentation (first and final investigation reports) is available on the IDSP portal</li> </ul>	District level – to make tactical changes to correct operational problems  State and National levels – to make strategic changes in the design to address the systemic problems
Analysis and use of data	<ul style="list-style-type: none"> <li>• % districts undertaking weekly surveillance analysis of data including graphs for trends over time and maps for incidence by area</li> <li>• % districts providing monthly feedback (one page bulletin/news letter) to sub units, policy makers and general public</li> </ul>	District level – to make tactical changes to correct operational problems State and National levels – to make strategic changes in the design to address the systemic problems

## State Performance Ranking

States	Outbreak (OB) Reporting & Confirmation (Max Score= 30)			Routine Weekly Reporting, Data Analysis and Feedback (Max Score=20)						Critical Staffing (Max Score=15)			Key Trainings (MM=20)		Innovations (Max Score = 15)	TOTAL Max= 100
	No of Reported	% OB samples collected	% OB lab confirmed	Online	State Analysis	Dist. Analysis	S form Graphs	P form Graphs	L form Graphs	SSO	SLabCo-ordinator	DSO+ DM: >80%=5, <60%=0	Hospitals Staff	FETP (DPH, MPH, F ETP)	Innovations (Max Score = 15)	Score
<b>Score</b>	> 10 =10; 5-10=5; 2-5=3, <2=0	>25%=10, 16-25=5, 6-15=3<15=0		OL=5, ES=3, HC=2 No=0	A&F=3,A=1,No=0		Good=3, OK=2, Poor/ND=0			FT>1Yr=5, FT 6M-1Y=4,FT<6M=3,P T=1,NO=0			>50%=10, 26-50%=8, 10-25=4,<10%=0		E=15,G=10, OK=5 P/N=0	
<b>Major States</b>																
Karnataka	10	10	10	4	3	3	3	3	3	3	5	5	10	8	5	83
West Bengal	10	10	10	3	3	1	3	3	3	3	0	5	8	8	10	80
Tamil Nadu	10	10	10	4	3	3	3	3	3	3	5	3	4	8	5	77
Punjab	5	10	5	3	3	3	0	2	2	5	0	3	10	8	15	74
Gujarat	10	10	10	4	3	3	0	0	0	3	0	3	8	8	10	72
Maharashtra	10	10	10	3	1	1	3	3	3	3	0	5	8	10	0	70
Andhra Pradesh	10	10	0	4	3	3	3	3	3	3	0	3	4	0	15	64
Rajasthan	3	10	10	5	3	0	3	3	3	5	0	3	8	4	0	60
Haryana	5	10	10	3	3	0	2	2	2	5	0	5	8	0	0	55
Orissa	10	3	3	4	1	1	3	3	3	5	0	3	4	0	5	48
Madhya Pradesh	10	10	10	0	3	1	2	2	2	4	0	3	0	0	0	47
Kerala (No Info)																
<b>Smaller States &amp; UTs</b>																
Uttarakhand	4	5	5	3	3	3	3	3	3	5	0	3	10	4	5	59
Chandigarh	0	5	5	3	3	NA	3	3	3	5	NA	3	10	0	15	58
Goa	2	5	5	3	3	0	3	3	3	5	NA	5	8	0	5	50
Puduchery	2	5	5	3	3	0	3	3	3	5	NA	0	8	0	0	40
Himachal Pradesh	2	0	0	3	1	1	2	2	2	3	NA	3	8	8	0	35
Daman & Diu	0	0	0	3	3	3	3	3	3	5	NA	3	4	4	0	34
Chattisgarh	5	0	0	4	3	0	2	2	2	0	NA	3	4	0	5	30

