



International Federation
of Red Cross and Red Crescent Societies

Project Review

Hanwang Xinkai water supply project

IFRC EAST ASIA REGIONAL DELEGATION

8/26/2011

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Special thanks to Mr. Henk Schipper, watsan delegate of DPRK, who led the project review and provided technical support and advice. And also a sincere gratitude to Mr. ISAKA Kazutaka, representative of Japanese Red Cross Society, on his participation and generous support to this review.

This report is compiled with Henk Schipper's observations and recommendations as stated in his project review report drafted on 26 July, 2011.

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Background

In response to the earthquake that occurred in Wenchuan, Sichuan Province on May 12th 2008, the International Federation of Red Cross and Red Crescent Societies (IFRC) supported the Red Cross Society of China (RCSC) Mianzhu county branch to implement a water supply project in Hanwang township, one of the most heavily affected districts, as part of an overall multi-sector recovery assistance program.

After extensive recovery assessments were conducted in July 2008, a water and sanitation recovery plan of action was proposed in October 2008. After a period of negotiation on potential projects, the Hanwang Xinkai water supply system was identified as one component of this plan of action, although the focus of the RCSC on completing shelter in accordance with the recovery plan (agreed through an Memorandum of Understanding in February 2009) meant that the commencement of the project implementation was delayed and the sanitation (biogas) component of the plan of action was also later removed. A project agreement was signed between IFRC, RCSC and the Water Bureau on 12th February 2010 allowing construction to commence for an intended period of 8 months, which was later revised to 14 months. The current project schedule indicates the water supply system construction will be completed by the 30th April and household connections to the only 80% of intended beneficiaries (that have currently applied to be connected) completed over a period of time beyond this point.

A mid-term review of the overall IFRC supported Sichuan earthquake recovery program was completed in May 2010. One of the recommendations for water & sanitation included reviewing the different methodologies of supporting RCSC with Water & Sanitation projects adopted in the past (including this project) with a view to provide guidance on a framework for optimal achievement of future water & sanitation project objectives with consideration of the RCSC water & sanitation capacity. This recommendation was one of the rationales for undertaking this review.

Purpose

1. To assess the potential sustainability of the Hanwang Xinkai water supply project;
2. To create institutional memory of the achievements, challenges and learning that have taken place in the design, implementation and management of the Hanwang Xinkai water supply project to advise a framework for future support to RCSC on water & sanitation projects.

Objective

- To identify key lessons in the design and implementation of the project
- To recommend solutions to any identified challenges with a focus on sustainability
- To provide recommendations on a framework for supporting RCSC with water & sanitation programs in the future

Methodology

1. Review of relevant documents, see annex 1;
2. Interviews with key persons involved;
3. Formal meetings with concerned RCSC branches, and government officials, see annex 2;
4. Visit to American RC funded Water and Sanitation projects.
5. Contact the water & sanitation delegate of this project by e-mail for some clarifications.

Evaluation findings

Appropriateness

In October 2008 the Water & Sanitation Needs Assessment Sichuan earthquake identified the townships of Zundao, Jiulong and Banqiao of Mianzhu County for the water supply intervention. The focus should have instead been on rural villages, and Centralized water systems should be excluded as not appropriate for the work of the Red Cross.

The Water supply intervention was to use the Community Vulnerability Reduction (CVR) approach, an integrated approach to community development, which aims to reduce the vulnerability of populations and to improve capacity to cope with water shortages, and as such complementing government efforts.

The government decided to relocate remote rural settlements into more urban clusters. There were many time constraints as the water project was delayed by the shelter project, which had priority to be completed before any other project could start, which made IFRC accept the off the shelf project of Hanwang water project without due consideration of the recommendations of the initial assessment.

The RCSC does not have a policy regarding water & sanitation interventions in China, though there have been some experiences with PNS supported water and sanitation projects, like the CVR project, American Red Cross supported projects and some projects supported by the Norwegian Red Cross.

The hookup fee, would most likely exclude the most vulnerable people to connect as they cannot afford the costs of it, noting that the Red Cross should just consider the most vulnerable people.

Effectiveness:

Hookup

At the time of the review no household connection had been established yet. Different hookup assessments had taken place over time, indicating different percentages on the number of people willing to connect. The main issue at the moment is the fee to be paid by the beneficiaries for getting connected to the system. Surveys indicated that a majority, over 90% of the household, wish to get connected to the system. However, also a large number indicated that they would have difficulty if they had to pay something between RMB 250 – 750. The authorities seem to have difficulty in establishing the fee for hook up. What can be understood from their perspective is that if the price is too high people will not hook up, and running the system will become too expensive as there will be not enough revenue from the water sales.

There had been discussions about subsidy for vulnerable to hook up but the local government claims that they do not have enough resources to cover these.

Hygiene promotion

Hygiene promotion had not commenced yet. It was expected that hygiene promotion would also motivate people to connect to the water system. The strategy for implementing the hygiene promotion is not very clear yet; the Mianzhu branch of the RCSC will collaborate with local Centre of

Diseases Control (CDC) in preparing this part of the program and further submit a proposal to IFRC for financial support.

Pipeline design

The design was done by a company contracted by the Mianzhu water bureau. During the review it was not possible to meet with people from this company to discuss the design process. According to Henk, the English version of the design document does not give the complete design assumptions. It further shows some calculations, which seems quite irrelevant. For each section the friction loss is given, and the residual head is given, which shows, the design is based on minimum friction losses and results in high pressure throughout the system. The height difference between the reservoirs, which is the highest point in the system, and the lowest point of the distribution network is over 200 meters, which indicates more than sufficient pressure is available. To conclude, even without having the full bases for design, the system is over designed. Another observation in this regard is that primary feeder line is of the same size up to the end of the system, even if at the end only a few households left to be served.

There are Chinese Government instructions for design of water supply systems, but these were not available during the review. These guidelines/instructions were not available to the IFRC water & sanitation delegate. It was therefore not possible to assess properly the design of the water supply scheme.

During the review it was indicated that the use of big size pipe up to the end of the system is for future extension of the system except for one area. Design period for the system is 15 years as per regulations of the government, which does include a population growth.

Water intake

The initial intake constructed, an extension of existing intake for irrigation was washed away in August 2010, and this has been classified as a force majeure. The newly designed and constructed intake, which is located a hundred meters further upstream, is more likely to survive uncertain extreme conditions but a guarantee can never be given. A lot of discussions have taken place around the construction of the intake, in relation to the availability of a debris flow investigation of the river, which should have been conducted before construction as well as a geotechnical survey. These surveys are supposed to be compulsory as per Chinese regulation, and then not for all projects but only for those of a certain size. As stated in Henk's report, the question remains whether the outcome of these surveys would be incorporated into the design, or in other words will the final design be different whether these surveys are done or not?

At the intake it could be observed that a lot of material excavated from the construction site was deposited upstream. It is very likely that this material will wash away, or worse might even obstruct the flow of water.

The filtration plant appears to be well constructed in accordance with the standard design. At the time of visit it was in operation, producing clean chlorinated water. The only observation made is that the sedimentation unit is not properly covered, which is not part of the standard design.

Pipeline construction

From the intake to the filtration plant/reservoir, it was observed that at a few places the pipeline was exposed. Special measures should have been taken to protect the exposed pipeline from sunlight (UV light does have negative influence on the strength of PE pipe) and from puncturing/damaging by external elements.

According to Henk, the fieldtrip reports (prepared by the former Water & Sanitation Delegate of this project) suggest that there have been a number of changes to the pipe sizes actually constructed. In some cases it was suggested to have smaller pipe size, other cases it was just the other way around. In case of change of design, i.e. Change of pipe size, this should be based on facts, what change in situation did take place justifying such a change in design, and should be substantiated with calculations showing that change is required.

Sustainability

According to Henk, the quality of construction, including materials used, as far as could be observed, and not including the household hookup, is good, with only one restriction to the water intake, as mentioned above.

The technology used for filtration, flocculation and chlorination is a standard design. The chlorine is produced in the plant, and it was said that the operators will be trained for that. Observations from American Red Cross visited projects would suggest some reservations in the proper use of it. Use of chemicals requires also proper monitoring as the situation and quality of water do change and with that the use of chemicals. Especially in case of a stream intake, where the turbidity would increase after rain, the amount of flocculants required would increase, and likely for chlorine as well. During the visit in July it was mentioned that chlorine will be tested on hourly bases and recorded while other parameters will be measured once a day.

In general the technology used for treatment, and specific issues regarding design are standardized mainly based on the scale of the water scheme, i.e. the number of people served and not specifically related to actual situation like the source being a stream, lake or spring, the latter would suggest limited treatment requirements while a stream would require more and this does not depend on the number of people served. Accidently the treatment for this project seems to be adequate.

The project is to be operated by a government owned enterprise. The connected users will have to pay for the water according the amount they use, which will be used for the operation and maintenance of the system. The sustainability of these arrangements depends on the number of people connected. If only 30 % of the households will be connected, the income might be insufficient to operate the system.

Recommendations

The recommendations are focusing on possible future involvement of the RCSC in water, sanitation and hygiene promotion projects. It is clear that from the onset, when without much consideration an 'off the shelf' project was accepted, this project was deemed to be troublesome.

1. Focus on the Red Cross principle target groups, the most vulnerable.
2. Avoid complicated agreements; keep it simple, the IFRC should focus on support to the RCSC in implementing the project. This means that RCSC takes the lead and all the arrangements, contract etc. with the local authorities, should be done by the RCSC. The RCSC is to be held accountable for the project. Any support from the IFRC has to be channeled via the RCSC, with the focus on capacity building within the RCSC. The IFRC should not deal independently and/or directly without the RCSC with any third party involved in the implementation of the project. The IFRC has to accept the implementation modalities in China, where local authorities have certain roles and responsibilities.
3. Notwithstanding the above, technical support is required, not only to make the projects financially effective, but also to have the best technical solution. This will require an expert with the right qualifications, especially when piped (semi) gravity flow water supply and sanitation systems are involved.
4. Financial commitment should only be made after full agreement on the technical aspects of the project, since the responsibility for this lies outside the RCSC. Once the commitment has been made it will be difficult to have any amendments made to the project. It is said all is done according to the government regulations; a copy of these should be made available to the RCSC/IFRC.
5. Structuring the project implementation as was done with the CVR implementation tool will facilitate the implementation process. The RCSC should be responsible for monitoring the project, to ensure the intended beneficiaries are reached and minimum standards are met. The IFRC should support and facilitate this activity.

Conclusion

Despite that the Hanwang township water supply project was without due consideration in planning phase and might not completely address the needs of the most vulnerable people, it is very likely that it will supply water to a number of beneficiaries. The lessons to be learned from this project are quite obvious, or at least these should be. The IFRC has to accept the modalities of implementing projects in china and focus on capacity building within the RCSC.

Annex 1, list of project documents accessed.

1. ECHO 4 CVR project Evaluation report, July 2006.
2. CRV implementation Kit 2nd version, 2005.
3. Water and Sanitation Project Liaoning RC 2004 -2006.
4. Mid-Term Evaluation of the NRC supported Branch Development and water & sanitation Project Yanbin prefecture Jilin Province, November 2007
5. Sichuan earth quack draft evaluation report (May 2008 - May 2010).
6. Ningxia Proposal June 2006 – December 2007 American RC.
7. Sichuan Water Project Proposal, final American RC.
8. Sichuan Assessment rough draft Final RCSC and IFRC joint earthquake assessment.
9. Project Agreement, Hanwang project.
10. Addendum to the Agreement of Hanwang project 31st March 2011.
11. Monthly progress reports May 2009 till April 2011.
12. Field trip reports, February 2009 till January 2011.
13. Sichuan technical assessment July 2008
14. Mianzhu Quake damage and reconstruction plan.
15. Water & sanitation program logical framework.

Annex 2, schedule of the review and people met.

Date	activity	Meeting with:
16-5-2011	Meeting RCSC HQ, Beijing	Ms. Yan Su, Head International Cooperation Division External Liaison Department Mr. Dai Xiao Ming, International Cooperation Division Mr. Wang Pin, Head Health and Relief Department Mr. Liu Tongxin, PO External funded Program Team
16-5-2011	Meeting with Am RC, Beijing	Ms. Han Xu, Program officer Am RC
19-5-2011	Meeting with IFRC zonal water & sanitation coordinator in Kuala Lumpur	Ms. Kathryn Clarkson, Zonal Water & Sanitation Coordinator IFRC KL
23-5-2011	Meeting Key staff IFRC Beijing	Dr. Amгаа Oyungerel, IFRC regional health delegate
24-5-2011	Cont, meeting key staff, Chengdu	Dr. Jeyathesan Kulasingam, IFRC Health and PSP delegate
24-5-2011	Meeting RCSC, Sichuan provincial branch	Mr. Ding, Vice Chairman Ms. Ping Yang, Minister of Disaster Relief Department Mr. Xian Zhonghua, Project Officer
24-5-2011	Meeting RCSC, Deyang prefecture branch	Mr. Qiu Mianshan, Executive Vice President Ms. Yang Xuan, Finance Officer Mr. Chen Jun, Program coordinator
24-5-2011	Meeting RCSC Mianzhu	Mr. Zheng Zemin, Managing Deputy President RCSC Mianzhu branch Mr. Shi Lei, Vice Secretary General Mianzhu county government Mr. Fu Longjin, Secretary Discipline and Inspection Mianzhu Water Bureau Mr. Yang Honghai, General Director Mianzhu Water Bureau Mr. Yu Yongli, Vice General Manager Water supply company Mr. Wang Kun, Admin officer RCSC Mianzhu Branch Mr. Chen Ganlin, Water & Sanitation Assistant, RCSC Mianzhu branch
25-5-2011	Site visit	All the above plus; Mr. Zhou Yi, Vice Mayor Mianzhu County Government Mr. Xie Shaoxuan, Site technician Construction company.