



# Terminal Evaluation Report on International Course on Domestic Wastewater Treatment Techniques

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**Terminal Evaluation Report**  
**On**  
**International Course on**  
**Domestic Wastewater Treatment Techniques**

**December, 2003**

**JICA São Paulo Branch Office**



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Part of SABESP Organization Staff for the TCTP

## SUMMARY

### I. Outline of the Project

<b>Country:</b> Brazil		<b>Project Title:</b> "Course on Domestic Wastewater Treatment Techniques"
<b>Issue/Sector:</b> Sanitation Sector		<b>Cooperation scheme:</b> TCTP - Third Country Training Program
<b>Division in charge:</b> <b>Regional Dept. III</b> <b>South America Division</b>		<b>Total cost:</b> ¥ 34.21 million (Japanese side ¥ 24.02 million) <b>Cost per participant:</b> ¥ 0.53 million <b>Share of Japan's contribution:</b> 70 % <small>(Note: These costs are referred to the period JFY 1999 ~ JFY 2002 - 4 courses. The 5<sup>th</sup> course for JFY 2003 is still being organized.)</small>
<b>Period of Cooperation</b>	<b>(R/D):</b> December 17, 1999	<b>Partner Country's Implementing Organization:</b> SABESP - São Paulo State Sanitation Company <b>Supporting Organization in Japan:</b>
	<b>(Extension):</b> JFY1999 to JFY 2003	
<b>Related Cooperation:</b>		

### 1. Background of Project

The environmental effects caused by the discharge of wastewater, together with the limitation of natural and financial resources, demand urgent effective solutions for the increasing environment pollution problems.

SABESP - São Paulo State Sanitation Company, in the Federative Republic of Brazil, is the biggest environmental sanitation company in Latin America. It is an efficient and productive company that uses up-to-date technology for the treatment of domestic wastewater, also developing researches on the matter. Since 1976, SABESP maintains technical cooperation with JICA and has sent already 80 members of its technical staff for training in Japan. Moreover, 5 JICA experts have already come to SABESP for technical transfer. JICA has been supporting SABESP in its technical development and thus SABESP has become apt for transferring its technology for other developing countries.

Under these circumstances, the Government of Brazil considered important to carry out a training course about domestic wastewater treatment techniques under JICA's Third Country Training Program, to be implemented by SABESP, having the Latin America and African (Portuguese speaking) countries as target. Thus, the RD (Record of Discussions) was signed in Brasilia on December 17, 1999.

### 2. Project Overview

The course was elaborated in order to technically qualify professionals with general knowledge and skills on Domestic Wastewater Treatment Techniques.

#### (1) Outputs of the Training Program

##### 1) Output 1

*Has the level of understanding of participants in the field of training subject improved?*

Verification of understanding level in the field of training subject through: (a) Questionnaire for ex-participants, and (b) Visit to ex-participants and their institutions in Peru (SUNASS and SEDAPAL).

##### 2) Output 2

*Are the participants using the knowledge and skills obtained in the training course in their work?*

Verification of works and activities of ex-participants through: (a) Questionnaire for ex-participants, and (b) Visit to ex-participants and their institutions in Peru (SUNASS and SEDAPAL).

### 3) Output 3

*Was the exchange among participants, lecturers and training institution strengthened?*

Verification of results of exchange among participants, lecturers and training institution through: (a) Questionnaire for ex-participants, and (b) Interview with SABESP organization team.

## (2) Inputs (regarding the period JFY 1999 ~ JFY 2002)

### Japanese Side

Short-term experts:	3 experts
Invitation expenses:	¥ 24.02 million
Total cost:	¥ 24.02 million

### Brazilian Side

Lecturers, Staff:	56 persons
Training expenses: (Including Transportation)	R\$ 193,436.47 (¥10.20 million)
Total cost:	R\$ 193,436.47 (¥10.20 million)

## II. Evaluation Team

**Members of Evaluation Team:** JICA São Paulo Office (Commissioned to Ms. Ione Marisa KOSEKI CORNEJO, graduated at the University of São Paulo, School of Architecture and Urbanism, independent consultant)

**Period of Evaluation:** From November 1<sup>st</sup> 2003 to December 26<sup>th</sup> 2003

**Type of Evaluation:** Terminal

## III. Results of Evaluation

### 1 Achievement of the Training Program

	JFY - 1999	JFY - 2000	JFY - 2001	JFY - 2002	JFY - 2003
Number of Applicants	40	42	43	57	
Number of Participants	14	15	18	18	Under organization
Countries participated	11	13	13	15	
Duration	1 month	1 month	1 month	1 month	

### 2 Evaluation Results

#### (1) Analysis on the Achievement in terms of Outputs

The understanding level of the knowledge and skills introduced in the Course among participants is very high (84% of questionnaire respondents have almost fully understood the knowledge and skills introduced in the Course). 32% of the respondents got more responsibilities and/or were assigned to a chief/coordination position in consequence of their participation in the course, and 68% reported to have proposed and/or implemented changes and/or new projects in the organization where they work using the acquired knowledge and skills. 82% of the respondents kept in touch with the Course related persons after returning to their countries, mostly with other participants. However, only a few kept in touch with lecturers and organization staff. Those who didn't keep in touch reported to have tried to or wanted to.

As for the achievement in terms of outputs, we consider that Outputs 1 and 2 were achieved, whereas Output 3 was partially achieved although an important communication channel was created through the Course for further strengthening of networking and cooperation among ex-participants, organization institution, lecturers, etc.

## **(2) Relevance**

The contamination of water resources by wastewater is a menace to the health of entire populations in Latin American and African countries, also posing a threat for the development of these economies. Nevertheless, till recently this issue was not given the due attention on the part of governments more preoccupied in expanding the levels of water supply. However, not disregarding the importance of universalizing water supply for the whole population, this measure can become inefficient in terms of health conditions if the water sources become polluted with the discharge of untreated domestic wastewater. Under such conditions, the training program was sufficiently organized to propitiate the participants with theoretical and practical information to make them key professionals in their organizations. 62% said the knowledge and skills acquired during the Course are "very much useful in their daily work", and 100% said to have disseminated the knowledge among coworkers after returning from the Course. For these reasons, the relevance of this project is considered high.

## **3. Factors promoting sustainability and impact of the Training Program**

### **(1) Factors concerning to Planning**

- Problems pointed out by ex-participants and/or verified by the SABESP organization team itself were corrected in the subsequent course, as consequence of the evaluation survey carried out by the organization team upon the completion of each course.

### **(2) Factors concerning to the Implementation Process**

- Possibility of gathering various experts and of visiting various different WWTP and other related facilities allowing a rather complete overview on the "Domestic Wastewater Treatment Techniques", thus qualifying the participant as a professional with a broad and general understanding of the whole process.
- Possibility of information exchange among these experts (from SABESP, Universities and other Brazilian institutions, and Japanese experts) and the participants of various different countries of Latin America and Africa.
- Immersion in the course, considering that the participants are far from their day-to-day responsibilities and thus can concentrate in the studies.

## **4. Factors inhibiting sustainability and impact of the Training Program**

### **(1) Factors concerning to Planning**

- Duration of the course considering that various participants expressed their wish to deep the knowledge and skills obtained during the course (asked about recommendations to improve the course, 48% of the respondents recommended measures to extend/optimize the course duration).
- Participants lack a closer advisory during the elaboration of their Work Plans.

### **(2) Factors concerning do the Implementation Process**

- Lack of an operative networking and cooperation structure among ex-participants and experts (lecturers/teachers) of SABESP and other participant organizations to allow a continuous learning process and flow of information.
- The Work Plans, elaborated during the course by participants, are not being followed-up after the course. This would be a good opportunity to render support for the ex-participants in the implementation of these plans considering that these are strongly related to the ex-participants current activities.

## 5. Conclusion

The TCTP on "Domestic Wastewater Treatment Techniques" is a very important training program regarding the needs and policies of the targeted countries which are now dealing with the overcoming of health and environmental problems caused by the lack of this kind of treatment. The participants of the course are qualified to have an excellent overall view of the subject and are apt to multiply the obtained knowledge and skills in their home organizations. The creation of an operative networking and cooperation among participants and experts from SABESP and other participant organizations, including the Japanese experts, is vital for the continuity of the learning process started with the Course.

## 6. Recommendations

The organizing institution – SABESP – is doing a very professional work in the organization of the TCTP on "Domestic Wastewater Treatment Techniques". Nevertheless, to improve the current TCTP, some recommendations shall be made: (a) Study about the possibility of extending the course duration, or optimizing the schedule in order to meet the learning demands of the participants; (b) Study about the possibility of extending the period of the Work Plan execution, with individual guidance and provision of individual computer set to speed up the work plan execution process; and (c) Study about a manner to strengthen the networking and cooperation among the participants and the experts (SABESP, other participant organizations, JICA) for the provision of further information about the topics presented during the course, and also for the follow-up of the ex-participants work plans support and implementation.

This last recommendation is very important and should be carried out through, for instance, an Internet Site for the Program, either hosted in JICA-SP site or in SABESP site, what should be more convenient. Through this Internet Site of the Program, the ex-participants and participant experts can exchange useful information through Discussion Forums; updated information can be render available through documents for download; ex-participants can discuss the development and evolution of their Work Plans with fellow ex-participants and lecturers, the e-mail addresses of ex-participants, experts, organization team can be updated to avoid the loss of contact among them; etc.

## 7. Lessons Learned

This training program is an important technology transfer instrument that opens up the minds of participants and respective organizations for the complexity and importance of the treatment of domestic wastewater, not intending to form experts. It is a starting point for a continuous learning and researching process that should be enhanced. The levels and interests of participants are different, as well as the Countries' development levels. The coexistence of these different social, cultural and technological levels is regarded to be very rich in the said learning process.

## 8. Follow-up Situation

JICA and SABESP are analyzing the possibility of renewal of the TCTP agreement for another period of 5 years. At present, SABESP is organizing the 5<sup>th</sup> course of the first TCTP agreement.

## 終了時評価要約表

### 1. 案件の概要

国名：ブラジル		案件名：生活排水処理技術
分野：公衆衛生		援助形態：第三国集団研修
所轄部署：中南米部南米課		協力金額総計：34.21 百万円（日本側負担 24.02 百万円） 研修員一人あたり金額：0.53 百万円 日本の支出比率：70%
協力期間	(R/D)：	先方関係機関：サンパウロ州基礎衛生公社(SABESP)
	1999年12月17日 (期間)： 1999年度から2003年 度まで	日本側協力機関：
他の関連協力：		

#### 1-1 協力の背景と概要

途上国における生活排水、工業排水等の環境負荷の増加により深刻化する環境汚染に対する効果的、効率的な解決策が求められている。

SABESP は、ラテンアメリカ最大の基礎衛生公社であり、効率的で創造的な経営により、最新の技術を活用した生活排水処理を推進しており、併せて処理技術の開発にも精力的に取り組んでいる。同社は、1976年以降 JICA の技術協力を活用し、これまでに 80 名以上の技術者を本邦研修に参加させ、5 名の専門家派遣を受け入れている。この JICA の支援も貢献した結果、これまでに周辺の途上国に技術移転をするまでに技術力を蓄積するに至っている。

このような背景の下、ブラジル政府は、JICA の第三国集団研修プログラムによるラテンアメリカ及びポルトガル語圏アフリカ諸国を対象にした「生活排水処理技術」コース実施の協力を要請し、1999年12月17日に本協力に係る R/D が締結された。

#### 1-2 協力内容

本研修コースは、各国の生活排水処理に携わる技術者に生活排水処理技術の幅広い専門的な知識や技能を紹介し、習得させることを目的とする。

##### (1) 到達目標

###### 1) 到達目標 1

本研修コースにより、参加研修員の生活排水処理技術に係る知識が向上する。

(評価方法)

A) 参加研修員にアンケートを送付、B) ペルー現地視察調査により、ペルー研修員及び研修員所属機関 (SUNASS 及び SEDAPAL) をインタビューにより調査。

###### 2) 到達目標 2

参加研修員が、帰国後本研修コースで習得した知識や技能を業務において活用する。

(評価方法)

A) 参加研修員にアンケートを送付、B) ペルー現地視察調査により、ペルー研修員及び研修員所属機関 (SUNASS 及び SEDAPAL) をインタビューにより調査。

###### 3) 到達目標 3

本研修により、研修実施機関、講師及び参加研修員の交流ネットワークが強化される。

(評価方法)

A) 参加研修員にアンケートを送付、B) 研修実施機関に対してインタビューにより調査。

## (2) 投入 (評価時点) (1999年度から2002年度まで)

### 日本側:

在外技術研修講師派遣 3名  
研修実施経費負担 24.02百万円

総額: 24.02百万円

### 相手国側:

カウンターパート配置 56名  
ローカルコスト負担 R\$ 193,436 現地通貨 (10.20百万円)

## 2. 評価調査団の概要

### 調査者: (担当分野: 氏名、所属先、職位)

JICA Sao Paulo (現地委託コンサルタント: Ms. Ione Marisa Koseki Cornejo, 環境分野コンサルタント、サンパウロ大学建築学科卒業。

調査期間: 2003年11月1日~2003年12月26日

評価種類: 在外事務所終了時評価

## 3. 評価結果の概要

### 3-1 実績の確認

	1999年度	2000年度	2001年度	2002年度
応募者	40	42	43	57
参加者	14	15	18	18
参加国数	11	13	13	15
コース期間	1ヶ月	1ヶ月	1ヶ月	1ヶ月

### 3-2 評価結果の要約

#### (1) 到達目標達成度

参加研修員は本コースの理解度が非常に高く、84%が研修内容の技術や技能をすべて理解し、研修後に32%が研修の成果で昇格または責任の範囲が拡大したと回答し、68%が所属機関の改善、改造及び新規プロジェクトを他の元研修員と連携して提案及び実施したと報告した。82%の研修員が帰国後も研修に関係した人々(主に参加した研修員)と連絡を継続していると答えている。

結果として、上記到達目標1と2について十分達成されたと評価でき、到達目標3については参加研修員、実施機関、講師等間のネットワーク構築及び協力関係が開始されたことから、部分的に達成されたと評価できる。

#### (2) 妥当性

ラテンアメリカ諸国やポルトガル語圏アフリカ諸国における水資源の汚染は、地域住民の大きな脅威となっており、同時に、経済開発の障害にもなっている。最近まで各国政府は、住民への水の供給に重点を置き、下水処理の問題は優先順位が低い状況にあった。しかしながら、このような方策は、水源を汚染し、結果的に住民の保健衛生状態改善を妨げることになってきた。このような状況を背景にして、本件研修コースでは、所属機関で排水処理技術の中核となる人材の育成に効果的な内容となっている。研修内容について、62%の研修員が「通常業務でとても有効」と回答し、100%が仕事のパートナーに技術移転を行ったと報告している。これらの結果から、本コースの妥当性は非常に高いと評価できる。

### 3-3 効果発現に貢献した要因

#### (1) 計画内容に関すること

コース終了時アンケート、参加研修員及びコースコーディネーターらが指摘した問題点及び改善点が次期コースに応用・改善されて研修内容を向上させた。

#### (2) 実施プロセスに関すること

・実施機関のSABESPが、幅広い分野の講師陣を用意し、多数の処理施設の視察をカリキュラムに入れたことから、本コース参加者に幅広く生活排水処理技術全般について理解させることができた。

- ・研修の実施を通じて、実施機関、ブラジルの大学や研究機関及び日本人専門家とラテンアメリカ及びアフリカから参加した研修員の間での情報交換を可能にした。
- ・本研修では、参加者は、一定期間の各配属期間から離れて研修に参加することから、通常業務から開放され、コースに集中し、知識、技術の習得に専念できた。

### 3-4 問題点及び問題を惹起した要因

#### (1) 計画内容に関すること

- ・研修期間、内容について、48%の研修員から研修内容をより専門的な知識や技能を修得できるように期間の延長または、カリキュラムの最適化を図るべきとの要望があった。
- ・研修員が実施計画書(Working Plan)を作成する際に、実施機関の技術者からの個人的なアドバイスを不十分であったとの指摘があった。

#### (2) 実施プロセスに関すること

- ・研修員およびその所属機関と SABESP 講師陣等とのネットワーク及び協力体制構築に必要な努力、仕組み作りが十分ではなく、コース終了後の学習や情報交換は限定的なものとなった。
- ・各研修員の実施計画書(Working Plan)の実行が十分にフォローされておらず、研修員の研修成果の業務への反映の機会や、帰国後の SABESP と研修員、所属機関間の支援や、交流の機会を逸している。

### 3-5 結論

本研修コースは、参加各国が現在政策として、これまで排水処理への取り組みが不十分だったために悪化してきた保健衛生と環境問題に取り組もうとしていることから、各国のニーズに合致した研修コースといえる。参加研修員は、生活排水処理の技術全般を学び、帰国後、所属機関で習得した知識や技能を普及させている。研修員、SABESP 講師陣及び他の協力機関、日本の専門家間のネットワークの強化が、本研修により始まった学習、交流の持続のために非常に重要である。

### 3-6 提言 (当該プロジェクトに関する具体的な措置、提案、助言)

研修実施機関の SABESP は、非常に優れた体制で本研修コースを実施しているが、本研修コースを改善するための提言を挙げると、1) 研修員の要望に対応して、研修実施期間の延長またはコース内容の最適化を検討する。2) 実施計画書の作成期間を延長し、個別指導と作業をスピードアップする目的でコンピュータ環境を整備する。3) 研修員と SABESP 講師陣及び他の協力機関、日本の専門家間のネットワークを強化するための方策を検討する。

最後に指摘した点が非常に重要であることから、例えば、具体的には JICA Sao Paulo もしくは SABESP ホストのインタネットホームページで、ダウンロード資料による最新情報の提供、Discussion Forum、研修員の実行計画書の実行のフォロー等を可能にする。

### 3-7 教訓 (当該プロジェクトから導き出された他の類似プロジェクトの発掘・形成、実施、運営管理に参考となる事柄)

本コースは、参加研修員及びそれらの所属機関が生活排水処理技術の必要性を認識し、視野を広げるのに重要であり、特化した分野の専門家の養成を目的とはしていないが、継続的な学習及び研究開発の出発点となっている。参加研修員のレベル及びニーズは各国の開発段階に応じて大きく異なるが、社会的、文化的、技術的なレベルが違う人々の交流が研修の学習過程でとても有益である。

### 3-8. フォローアップ状況

SABESP から提出された 5 年間の延長要請を現在 JICA で検討中である。現在 SABESP は、第 5 回目のコース実施を準備している。





## **Chapter 1 Outline of the Evaluation Study**

### **1.1 Objectives of the Evaluation Study**

The objectives of this study is to appraise the results of the TCTP SABESP-JICA – “Course on Wastewater Treatment Techniques”, after the conclusion of four (04) training courses with the participation of 65 students from 22 countries of South and Central Americas and Africa (Portuguese speaking countries). The agreement foresees for the organization of the 5<sup>th</sup> course, to take place in the beginning of 2004 (JFY 2003).

The appraisal aims at recognizing the relevance, effectiveness, efficiency and sustainability of the Training Program through the evaluation of the program results in terms of: (a) needs and policies of the targeted Countries; (b) appropriateness as a way to transfer appropriate and up-to-date technology; (c) promotion of networking and cooperation among developing Countries; among others.

### **1.2 Members of the Evaluation Study Team**

JICA São Paulo Office (Commissioned to Ms. Ione Marisa KOSEKI CORNEJO, graduated at the University of São Paulo, School of Architecture and Urbanism, independent consultant).

### **1.3 Period of the Evaluation Study**

The Evaluation Study was conducted from November 1<sup>st</sup> to December 26<sup>th</sup> of 2003.

### **1.4 Methodology of the Evaluation Study**

The Evaluation Study was based mainly on the questionnaires responded by 50 out of the 65 ex-participants of four (04) courses carried out so far. Prior to forwarding the questionnaire (Portuguese or Spanish), the ex-participants were called by phone, whenever possible, and explained about the TCTP evaluation study and the importance of answering the questionnaire.

Apart from these questionnaires sent to ex-participants, a visit was scheduled to Lima-Peru, to meet the seven (07) Peruvian ex-participants and to visit their organizations so as to appraise “in loco” the application of the learned knowledge and skills. Six (06) ex-participants were actually met, five (05) of them in a meeting arranged by JICA-Lima office and the other at his organization. The organizations SEDAPAL (Sanitation Company of Lima, 2 ex-participants) and SUNASS (National Superintendency of Sanitation Companies, 2 ex-participants) were visited, and meetings were held with the ex-participants at their working place and with their superiors. The other two (02) participants’ organizations, SEDALIB – La Libertad and SEDACAJ – Cajamarca, were located at distances of approximately 500 km from Lima thus they were not visited.

The Evaluation Study was also based on conversations with the SABESP organization team, as well as on the reading of their Final Report of each organized course.

## Chapter 2 Outline of the Training Program

### 2.1 Background of the Training Program

Since 1976, SABESP maintains technical cooperation with JICA and has sent already 80 members of its technical staff for training in Japan. Moreover, 5 JICA experts have already come to SABESP for technical transfer. JICA has been supporting SABESP in its technical development and thus SABESP has become apt for transferring its technology for other developing countries.

Japan International Cooperation Agency (JICA) through the Coordinator in Brazil for Technical Cooperation of JICA, at the time Mr. Akira Hasumi, had a series of discussions with the Representative of Brazilian Cooperation Agency (ABC), as the legal intervenient agency on behalf of the Government of the Federative Republic of Brazil, headed by Ambassador Elim S. Dutra and with the staff of São Paulo State Sanitation Company – SABESP, represented by Mr. Ariovaldo Carmignani at the time of the RD signature, with respect to the framework of a training course in the field of domestic wastewater treatment under JICA's Third Country Training Program.

Based on the above technical cooperation history and discussions, the Coordinator in Brazil for Technical Cooperation of JICA, ABC and SABESP agreed to recommend to their respective Governments the implementation of the referred Training Program and signed a RD (Record of Discussions) in Brasilia on December 17, 1999 on this matter.

### 2.2 Summary of the Initial Plan of the Training Program

(1) Course Title	<i>"International Course on Domestic Wastewater Treatment Techniques"</i>
(2) Number of Participants per year	15 (in the 1 <sup>st</sup> and 2 <sup>nd</sup> years) and 18 (in the 3 <sup>rd</sup> and 4 <sup>th</sup> years) Note: In January 9 <sup>th</sup> , 2002, an amendment to the RD was signed, increasing the total number of participants from 15 to 18 - 3 vacancies exclusively to Peru.
(3) Duration	Approximately 4 weeks
(4) Years of Cooperation	JFY 1999 ~ JFY 2003

#### 2.2.1 Requirements for Application

(1) Level of knowledge and/or technique which participants are expected to have	<ul style="list-style-type: none"> <li>- Previous knowledge on basic concepts regarding the characteristics and composition of Domestic Wastewater;</li> <li>- Be college graduate in engineering or similar in the field of basic and environmental sanitation;</li> <li>- Be sufficiently skilled in Portuguese (conversation and writing). Also it is recommendable to have skills to read English.</li> </ul>
(2) Desirable Current Position/Duties	Be working in the field of basic and environmental sanitation, with emphasis on <i>domestic wastewater treatment</i> , in environmental agencies or institutions responsible for the planning, design, operation and maintenance of domestic wastewater treatment systems.
(3) Years of Experience in the sector/issue in question	03 (three) years of experience
(4) Age limit	45 years
(5) Target countries	Argentina, Angola, Bolivia, Brazil, Cape Verde, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Guinea-Bissau, Honduras, Mexico, Mozambique, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, San Tome and Principe, Uruguay and Venezuela.

### 2.2.2 Outputs of the Training Program

No.	Item	Indicator	Means of Verification
1	Has the level of understanding of participants in the field of training subject improved?	Level of understanding in the field of training subject	<ul style="list-style-type: none"> <li>– Questionnaire for ex-participants.</li> <li>– Visit to ex-participants institutions in Peru (SUNASS and SEDAPAL).</li> </ul>
2	Are the participants using the knowledge and skills obtained in the training program in their work?	Works and activities of ex-participants	<ul style="list-style-type: none"> <li>– Questionnaire for ex-participants.</li> <li>– Visit to ex-participants institutions in Peru (SUNASS and SEDAPAL).</li> </ul>
3	Was the exchange among participants, lecturers and training institution strengthened?	Results of exchange between participants and training institution	<ul style="list-style-type: none"> <li>– Questionnaire for ex-participants.</li> <li>– Interview with SABESP organization team.</li> </ul>

### 2.2.3 Curriculum

Topic of Training	Method of Training	Contents	Time Allocation
1. The Sanitation Sector in São Paulo State and in Brazil – History, Current Conditions and Perspectives	Lecture + field visit to a water catchment / Water Treatment Plant (WTP)	History, current conditions and perspectives	6 hours
2. Management and Constructive Processes for Sanitation	Lectures	General view of water resources, water supply and wastewater collection and treatment – problems, difficulties and actions	7 hours
3. Conception of Sewerage Systems – collection, transportation and treatment	Lectures	Networks, interceptors, pumping stations, etc.	13 hours
4. Characteristics and Composition of Domestic Waste Water – basic concepts, laboratory practices and the importance of a guarantee system of laboratorial analytic quality according to ISO 17025 criteria	Lectures + visits to Laboratories + Laboratory practices	Statistic concepts, importance of inter-laboratorial programs for the verification of proficiency and certification.	9 hours
5. Basic Fundaments of Domestic Waste Water Treatment – methods and definitions	Lectures	General information about the different units of the domestic wastewater treatment systems: preliminary, primary, secondary and tertiary treatments.	7 hours
6. Stabilization Ponds	Lectures + Visits	Concepts, degradation mechanisms, methodology, design parameters, dimensioning and necessary monitoring.	18 hours
7. Ocean Outfalls	Lectures	History, notions of design, execution, operation, surveillance and materials inspection.	3 hours
8. Activated Sludge Systems	Lectures + Visits	Activated sludge and variants, monitoring and operation routines	10 hours
9. Anaerobic Systems of Waste Water Treatment	Lectures + Visits	Definition, conception, advantages and disadvantages	7 hours
10. Soil Infiltration of WWTPs' Effluents	Lectures	Techniques, limitations and perspectives of reuse in agriculture	3 hours
11. Treatment, Final Disposal and Master Plan for WWTPs' Sludge Management	Lectures + Visits	Technology of treatment, stabilization and dewatering of sludge	6 hours
12. Inflow of non Domestic Effluents	Lectures	Program of reception in public sewerage systems, methodology and legislation	3 hours
13. Reuse of WWTPs' Effluents	Lectures + Visits	Criteria and technology for the industrial, agricultural and urban reuse	6 hours
14. Tertiary Treatment	Lectures	Advanced processes of wastewater treatment	3 hours
15. Automatization of WWTPs	Lectures	Basic concepts, conception and technologies	4 hours
16. Optimization of WWTPs	Lectures	Design, technology for costs reduction and assurance of effluent quality	2 hours
17. Costs of WWTPs Exploitation	Lectures	Basic concepts	4 hours
18. Compact WWTPs	Lectures	Concepts, conception and technologies	5 hours
19. Organization / Coordination	Meetings	Guidance, discussions, and presentations of Work Plans	10 hours

Note: Total workload of the Course is approximately 130 hours of classes.

#### 2.2.4 Training Institution

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(1) Name	SABESP – São Paulo State Sanitation Company
(2) Type of Institution	Open capital company that has the São Paulo State Government as its main shareholder. The company operates municipal sanitary services under concession.

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#### Information on other JICA cooperation activities with SABESP:

SABESP and JICA maintain a technical cooperation since 1976. The company has already sent 77 members of its technical staff for group training in Japan, and 3 (three) for individual training. SABESP has also received the visit of 5 (five) Japanese experts: (1) Water Supply and Maintenance in 2000, (2) For TCTP II in 2001, (3) Water Losses in 2001, (4) For TCTP III in 2002, and (5) For TCTP IV in 2003. Apart from this, SABESP also received the donation of laboratory equipment (approximately R\$ 32,000), plus a notebook and a digital camera.

#### 2.3 Revision from the Initial Plan

Based on evaluations carried out after each training course, the organization team has made some changes in the initial curriculum, in regard to topics of more interest and inclusion of new topics, aiming at fulfilling the participants' demands.

As for the didactic material, the textbooks were replaced by CD-Rom and delivered at the end of the course. For the TCTP V (to be carried out in the beginning of 2004), following the suggestions of ex-participants, two CD-Rom will be delivered: one in the beginning of the course and another at the end, with the remaining material.

SABESP's organization staff has also taken measures to improve the information, selection and overall logistics of the course.

## Chapter 3 Achievement of the Training Program

### 3.1 Implementation Framework of the Project

The course was elaborated in order to technically qualify professionals with some knowledge on Domestic Wastewater Treatment Techniques, even though their home countries still don't have any kind of treatment. The main goal is to show, in general, concepts, criteria and technologies of wastewater treatment, showing the advantages and disadvantages of each system, necessary monitoring, costs, automation and optimization of treatment plants. The management, treatment and final disposal of sludge are extremely important topics, as well as good laboratory practices. The course comprehends, apart from lectures and presentations in class, technical visits to allow the participants an actual view of the situation studied in class. The participants, at the end of each course, shall develop and present a Work Plan, possible to be implemented in their home countries. SABESP team gives guidance but doesn't interfere in the selection of themes nor in the future implementation of projects.

### 3.2 Achievement in Terms of Output

OUTPUT	JFY1999	JFY2000	JFY2001	JFY2002
1. Has the level of understanding of participants in the field of training subject improved?	AA	AA	AA	AA
2. Are the participants using the knowledge and skills obtained in the training course in their work?	AA	AA	AA	AA
3. Was the exchange among participants, lecturers and training institution strengthened	PA	PA	PA	PA

\*Achieved = AA, Partly Achieved = PA, Not Achieved = NA

### 3.3 Achievement in Terms of Activities

	JFY - 1999	JFY - 2000	JFY - 2001	JFY - 2002
Number of Applicants	40	42	43	57
Number of Participants	14	15	18	18
Countries participated	11	13	13	15
Duration	1 month	1 month	1 month	1 month

### 3.4 Achievement in Terms of Input

These costs are referred to the period JFY1999 ~ JFY2002 (4 training courses). The TCTP agreement provides for another course in JFY 2003 that is now being organized by SABESP.

**Total cost:** US\$ 296,865.02 (¥ 34.21 million)  
**Cost per participant:** US\$ 4,567.15 (¥ 0.53 million)  
**Share of Japanese Contribution:** 70 %

(Note: costs considering only foreign participants, since Brazilian participants pay for their own costs)

**Japanese Side:**

Short-term Experts	3 experts	0.5 M/M
Training expenses	-	-
Invitation expenses (air fares, transportation, per-diem, accommodation, medical insurance)	US\$ 208,366.50	¥ 24.02 million
<b>Total Cost</b>	<b>US\$ 208,366.50</b>	<b>¥ 24.02 million</b>

**Brazilian Side:**

Lecturers, Staff	56 persons	59.6 M/M
Training expenses (including transportation)	US\$ 88,498.52	¥ 10.20 million
<b>Total Cost</b>	<b>US\$ 88,498.52</b>	<b>¥ 10.20 million</b>

**Cost Breakdown:**

	JICA		SABESP		TOTAL		Cost per Participant	
	US\$	¥	US\$	¥	US\$	¥	US\$	¥
1999	49,023.59	5.20 M	21,240.31	2.25 M	70,263.90	7.46 M	5,018.85	0.53 M
2000	49,185.87	5.71 M	20,712.77	2.40 M	69,898.64	8.11 M	4,659.91	0.54 M
2001	58,174.00	6.87 M	24,425.44	2.88 M	82,599.44	9.75 M	4,588.86	0.54 M
2002	51,983.04	6.24 M	22,120.00	2.65 M	74,103.04	8.89 M	4,116.84	0.49 M
<b>Total</b>	<b>208,366.50</b>	<b>24.02 M</b>	<b>88,498.52</b>	<b>10.20 M</b>	<b>296,865.02</b>	<b>34.21 M</b>		
<b>Average</b>							<b>4,567.15</b>	<b>0.53 M</b>

**Breakdown of SABESP staff and Lecturers workload for TCTP IV:**

Personnel	No. of Persons	Workload	M/M
<b>ORGANIZATION STAFF</b>			
- Technical Superintendency of Production and Technology Directorate (TT)	15	1,652	9.4
- Pardo e Grande Business Unit of Regional Systems Directorate (RG)	13	530	3.0
<b>Sub-total</b>	<b>28</b>	<b>2,182</b>	<b>12.4</b>
<b>LECTURERS</b>			
- SABESP lecturers	21	320	1.8
- External lecturers	7	121	0.7
<b>Sub-total</b>	<b>28</b>	<b>441</b>	<b>2.5</b>
<b>Grand Total</b>	<b>56</b>	<b>2,623</b>	<b>14.9</b>
<b>Estimation for the 4 (four) TCTP's</b>	<b>Approx. same</b>	<b>10,492</b>	<b>59.6</b>

\*Workload Unit expressed in Man/hour



## Chapter 4 Results of Evaluation

### 4.1 Evaluation Results

#### 4.1.1 Analysis on the Achievement in Terms of Outputs

(Evaluated from the Questionnaire answered by 50 ex-participants – Annex II)

##### (1) Output 1

1. Has the level of understanding of participants in the field of training subject improved?  
 a. Achieved [ ] b. Partly Achieved [ ] c. Not Achieved
2. What were the promoting (if you chose a. or b.) or impeding (if you chose b. or c.) factors?  
 setting of outputs  requirement for application  willingness of participants  
 curriculum [ ] targeted countries [ ] duration  text/materials  
 lecturers  equipment [ ] others (\_\_\_\_\_)

Description of these factors in detail: 84% of the questionnaire respondents said to "Have almost fully understood the knowledge and skills introduced in the Course". No one said to "Have understood little". 94% considered the "Ability of Lecturers" GOOD. 80% considered the "Textbooks (other materials) and training / demonstration equipment" GOOD. 20% considered them FAIR for the following reasons: mainly the material was considered not sufficient, material should had been delivered in advance to the lectures and in magnetic media – there was only one complain about language. 90% considered the Training Curriculum GOOD. For the 10% that considered it FAIR, the main reasons were: course was general and not deepened in subjects of the interest of all participants (different interests, different development levels of the participants' Countries), and lack of more laboratory practices. 84% of the respondents said the Course met their expectations.

##### (2) Output 2

1. Are the participants using the knowledge and skills obtained in the training course in their work?  
 a. Achieved [ ] b. Partly Achieved [ ] c. Not Achieved
2. What were the promoting (if you chose a. or b.) or impeding (if you chose b. or c.) factors?  
[ ] setting of outputs [ ] requirement for application [ ] willingness of participants  
[ ] curriculum  targeted countries  duration [ ] text/materials  
[ ] lecturers [ ] equipment [ ] others (\_\_\_\_\_)

Description of these factors in detail: 32% of the respondents either got more responsibilities and/or were assigned to a chief/coordination position after returning from the course. On the other hand, 62% said the knowledge and skills acquired during the Course are "very much useful in their daily work". 38% said these are useful "at some degree or little useful". The main reasons appointed for that are: they are not working directly with wastewater treatment, or their organizations are mainly involved with water supply. In any case, they said despite not being so much useful in terms of wastewater treatment, the knowledge and skills obtained in the Course opened up their minds for the matter and are useful in other working fields. Moreover, 68% reported to have proposed and/or implemented changes and/or new projects in the organization where they work using the acquired knowledge and skills. 100% of the respondents said to have disseminated the knowledge and skills obtained in the Course in their organizations mainly through: report to the boss and coworkers (76%), through the daily work (70%), and circulation of the textbooks (66%).

### (3) Output 3

1. Was the exchange among participants, lecturers and training institution strengthened?  
 a. Achieved  b. Partly Achieved  c. Not Achieved
2. What were the promoting (if you chose a. or b.) or impeding (if you chose b. or c.) factors?  
 setting of outputs  requirement for application  willingness of participants  
 curriculum  targeted countries  duration  text/materials  
 lecturers  equipment  others (\_\_\_\_\_)

Description of these factors in detail: 82% of the respondents said to have kept in touch with persons related to the Course after returning to their Countries. Among these, 72% kept in touch with other participants, and 20% kept in touch with lecturers/teachers of the course. Only two (02) respondents said they kept in touch with the Course organization staff. Among the 18% who didn't keep in touch, the main reasons were: lack of opportunity and time, and deficient communication through e-mail (no answers, returned messages).

### (4) Overall Judgment on the Achievement of Outputs

The level of understanding of the knowledge and skills introduced in the Course among participants is very high. Participants also regard the ability of lecturers, textbooks and other training materials/equipment, and curriculum as good. Most of them report the Course met their expectations. Considering this, we consider that the Output 1 was fully achieved.

Some of the participants got more responsibilities and/or were assigned to a chief/coordination position in consequence of their participation in the course. *In our opinion, this shows the recognition* on the part of their organizations about the upgrade of these participants' technical knowledge and skills through the course. Moreover, most of them say the knowledge and skills are very useful in their daily work, and as a consequence various changes and projects were implemented in their organizations. Considering this, we consider that the Output 2 was also achieved.

Most of the participants kept in touch with the Course related persons after returning to their countries, mostly with other participants. However, only a few kept in touch with lecturers and organization team. Those who didn't keep in touch reported to have tried to or wanted to. We consider that Output 3 was only partially achieved. Nevertheless, we also consider that there is the will among participants to strengthen the communication channel with lecturers/organization team of the Course, and also with other participants.

#### 4.1.2 Relevance

##### (1) Relevance of the Training Program in Terms of the Needs and Policies of the Targeted Countries

For 96% of the respondents, the training course was important in view of the needs and policies of their Countries. Most of the respondents said their countries are still in the beginning of developing sewerage systems. For some of them, expansion of water supply for the whole population is still the main goal of their Countries/organizations. However, most consider the knowledge and skills obtained in the course very useful for planning sewerage systems, and for assuring the quality of population health and environment, through the control of the treatment effluents.

## **(2) Appropriateness of the Training Program as a Way to Transfer Appropriate Technology**

For 78% of the respondents, the training program was an appropriate way to transfer appropriate technology. For those who said "Partially or No", the main reasons given were: the course curriculum was too broad, not deepening in items of specific interest of the participants. For some of the participants, technologies presented are not applicable to their Countries mainly for financial reasons. Nevertheless the course was a "starting point for further studies" and "called the attention for how this problem is dealt with in more developed countries".

## **(3) Appropriateness of Conducting the Training Program in Brazil rather than in Japan and in their own Countries**

The advantages reported in conducting the training course in Brazil:

- Similar language and culture;
- Possibility of visiting several WWTPs in operation, what would not be possible in some of the targeted Countries;
- Concentration in the course because the participants are isolated from their routine work;
- Facility to gather several lecturers/teachers of high quality, including from Japan;
- Possibility to get to know various realities of Latin American and African countries and exchange information with these countries' participants;
- The Brazilian reality is more close to the targeted countries realities than the Japanese one.

## **(4) Improvement of Capacity and Ownership of the Training Institution (SABESP) through the Entrustment of the Training Program**

SABESP has been organizing this TCTP since JFY1999, and so far has organized 4 (four) courses. At present, they are organizing the 5<sup>th</sup> course. After the completion of each course, the organization team carries out an Evaluation Survey with the participants of that year about issues regarding the course such as: organization, contents and schedule, coordination team technical support to the participants, technical level and experience of lecturers/teachers, among others. In all the evaluations, the Course, in a scale from 0 ~ 5, was always ranked above 4: 4.22 (1<sup>st</sup> year), 4.42 (2<sup>nd</sup> year), 4.52 (3<sup>rd</sup> year), and 4.55 (4<sup>th</sup> year). This shows a good and progressive evaluation of the course on the part of the participants.

In this present evaluation, the course also got a good evaluation: 96% considered the course organization as GOOD, 94% considered the ability of lecturers as GOOD, text-books and other training/demonstration equipment were considered GOOD by 80% of the ex-participants, and the curriculum was considered GOOD by 90% of the respondents.

Problems pointed out by ex-participants and/or verified by the organization team itself were corrected in the subsequent course, as consequence of the aforementioned evaluation survey carried out by SABESP organization staff upon the completion of each course.

SABESP's organization team has also taken measures to improve the information, selection and overall logistics of the course. It is doubtless showing to be building up a solid organization structure to the TCTP.

**(5) Relevance of the Training Program in Terms of the Promotion of Networking and Cooperation among Developing Countries**

82% of the questionnaire respondents said they "kept in touch with persons related to the course after returning to their Countries". 72% of them said they exchanged technical information through the Internet and others. But only 26% kept in touch with teachers/lecturers and/or SABESP organization staff. In our conversation with Peruvian ex-participants, the desire of receiving more information about researches being carried out by SABESP, regarding some course' topics was strongly expressed. The same desire can be verified through the ex-participants answers about "subjects that should be more detailed/deepened" (only 3 ex-participants – 6% didn't answer this question) and "subjects that were not presented but should be introduced in the course" (only 5 ex-participants – 10% didn't answer this question). As we observe, the ex-participants are eager to deep and to update the information obtained in the course. The communication channel established through the course should be strengthened for the creation of an operative networking and cooperation structure.

**(6) Appropriateness of the Setting of Outputs and Training Components (Curriculum)**

In terms of Output 3, as we said, a communication channel was established. This is the first step to set-up an operative networking and cooperation structure among ex-participants, SABESP organization staff, lecturers and also JICA. This structure shall support, among others, the implementation of the Work Plans conceived by the participants during the course. Also in regard to the Work Plans, some participants suggested an extra-time for the elaboration of the work plan with an individual advisory.

Training components were set-up as a whole range of subjects related to Domestic Wastewater Treatment. This shows to be a good overall view of the matter for all the participants. However, considering different backgrounds of participants and respective countries, many of them expressed the wish to deepen the obtained knowledge and skills through, as quoted, "more information to be acquired after the course", "short-term internship in WWTP and other facilities to do practical work", "specific courses to deep the obtained information in the course", etc. Also, some respondents recommended the extension/optimization of the course duration (48% respondents, either as 1<sup>st</sup> or 2<sup>nd</sup> recommendation. Some quoted recommendations were: extension to 60 days, 12 hours of class/day, etc.).

In this sense, the set-up of an operative networking and cooperation structure shall be a powerful instrument for allowing a continuous learning process and flow of information.

**(7) Appropriateness of the Requirement for the Applicants and Selection Process**

The organization staff analyses the professional activities of the applicant, aiming at the best use of the course, the applicability upon his/her return to the respective country and the homogeneity of the group as for the background of already acquired knowledge. Apart from this, they try to invite different companies in order to give the opportunity to a larger number of professionals to take part on the program. The only restraining requirement for the applicants was the age of 45, which in fact is no more being requested considering that this request is against the Brazilian laws.

## **(8) Presentation of new and up to date Technologies by the Training Program**

Ex-participants were very much interested in some new and up-to-date technologies presented in the course such as the use of biosolids in agriculture, reuse of effluents and biogases, etc. Another important issue is the appraisal of effluents quality that has a lot to do with the system used in the wastewater treatment. Some of the targeted countries are starting to control the quality of treatment effluents to assure an environmental and health control of water bodies. Thus, some of the participants were very much interested in laboratory procedures, legislation, and related matters such as environmental impact of treatment systems. Nevertheless, they were also very much interested in deepening the design and operation knowledge of the stabilization and oxidization ponds, methods commonly used in the targeted countries, apart from the use of activated sludge in treatment. Another important issue, considering these countries financial conditions, was the deepening of the study of economic aspects for the selection of the most appropriate wastewater treatment method.

## **4.2 Conclusion**

### **4.2.1 Factors Promoting Effects of the Training Program**

Factors promoting effects of the Training Program:

- The possibility of gathering various experts and of visiting various different WWTP and other related facilities in Franca and other locations in São Paulo State, under the management of SABESP, allowing a rather complete overview on the "Domestic Wastewater Treatment Techniques", thus qualifying the participant not as an expert but rather as a professional with a broad understanding of the whole process.
- Possibility of information exchange among these experts (from SABESP, Universities and other Brazilian institutions, apart from Japanese experts) and the participants of various different countries of Latin America and Africa, also from the cultural point of view, during the course, formally through the classes and technical visits, and informally through one-to-one conversation.
- Immersion in the course, considering that the participants are far from their day-to-day responsibilities and thus can concentrate in the studies.

### **4.2.2 Factor Inhibiting Effects of the Training Program**

Factors inhibiting effects of the Training Program:

- Lack of an operative networking and cooperation structure among ex-participants and experts (lecturers/teachers) of SABESP and other participant organizations to allow a continuous learning process and flow of information.
- Duration of the course considering that various participants expressed their wish to deep the knowledge and skills obtained during the course.
- The Work Plans, elaborated during the course, are not being followed-up which would be a good opportunity to render support for the ex-participants in their implementation considering that these work plans are strongly related to their current activities.

### **4.2.3 Conclusion**

The TCTP on "Domestic Wastewater Treatment Techniques" is a very important training program regarding the needs and policies of the targeted countries which are now dealing with the overcoming of health and environmental problems caused by the lack of this kind of treatment. The participants of the course are qualified to have an excellent overall view of the subject and are apt to multiply the obtained knowledge and skills in their home organizations. Considering the different development levels of the targeted countries and background of the participants, for some of them these knowledge and skills are not enough, and they feel eager to deepen them in order to put into practice, at their home countries, what they have learned (Work Plans). In this sense, the creation of an operative networking and cooperation structure among participants and experts from SABESP and other

participant organizations, including the Japanese experts, is vital for the continuity of this learning process. The creation of this structure, can lead to the proposition of other activities such as specific courses to meet the demands of the participants, or the creation of Internet forums for the exchange and updating of information, among others.

## **Chapter 5 Recommendations and Lessons Learned**

### **5.1 Recommendations**

#### **5.1.1 Recommendations for the Partner Country Side (Direction of Future Project Activities)**

The organizing institution – SABESP – is doing a very professional work in the organization of the TCTP on "Domestic Wastewater Treatment Techniques". This professional attitude is recognized by the participants, and also through the request of other partnerships such as with the JICA-Lima for the organization of a course on "Reduction of water losses, macro- and micro-measurements" for the Peruvian sanitation companies (44).

Nevertheless, to improve the current TCTP, some recommendations shall be made:

- Study about the possibility to extend the course duration, or to optimize the schedule in order to meet the learning demands of the participants;
- Study about the possibility of extending the period of the Work Plan execution, with individual guidance and provision of individual computer set to speed up the work plan execution process;
- Study about a manner to strengthen the networking and cooperation among the participants and the experts (SABESP, other participant organizations, JICA) for the provision of further information about the topics presented during the course, and also for the follow-up of the ex-participants work plans support and implementation.

The above recommendations mainly aim at meeting the learning demands of different targeted countries participants and assuring the continuity of the learning process and effective implementation of the obtained knowledge and skills.

#### **5.1.2 Recommendations for JICA (Necessity for Follow-up Cooperation)**

As already mentioned, the continuity of the learning process is vital for the actual implementation of the obtained knowledge and skills. In this sense, the strengthening of networking and cooperation as mentioned before is vital.

JICA should cooperate with SABESP in the creation of a solid networking and cooperation structure, through an Internet Site for the Program, either hosted in JICA-SP site or in SABESP site, what should be more convenient. Through this Internet Site of the Program, the ex-participants and participant experts can exchange useful information through Discussion Forums; updated information can be render available through documents for download; ex-participants can discuss the development and evolution of their Work Plans with fellow ex-participants and lecturers, the e-mail addresses of ex-participants, experts, organization team can be updated to avoid the loss of contact among them; etc. This tool can provide countless opportunities to allow the continuity of the learning process, multiplication, and sustainability of the Program.

## **5.2 Lessons Learned**

### **5.2.1 Lessons Learned regarding Situations in Evaluated Country and Sectors (policy, technological level, social and cultural aspects, institution, economic and financial aspects, etc.)**

The levels and interests of participants are different, as well as the Countries development levels. Some participants' organizations/Countries are not yet ready for fully implementing the treatment of domestic wastewater, either for lack of funds or for having other priorities, such as expanding the water supply system. Nevertheless, many participants said the acquired knowledge and skills are useful in their daily work, and will be useful in planning future sewerage systems. In case of others, they are ready to use and, sometimes, lack more detailed information for the actual implementation of a given treatment system. Nevertheless, the coexistence of these different social, cultural and technological levels is regarded to be very rich in the learning process.

### **5.2.2 Lessons Learned regarding Project Management (Finding, Formulation, Implementation, Evaluation, etc.)**

This training program is an important technology transfer instrument in regard to wastewater treatment systems and should definitely continue considering the demand for it (182 applicants – 2.8 times the number of participants, 65 from 22 countries, in 4 JFYs). It opens up the minds of participants and respective organizations for the complexity and importance of the matter, not intending to form experts. It is a starting point for a continuous learning and researching process that should be enhanced to assure the plenitude of the program sustainability.





# **ANNEX I QUESTIONNAIRE**

**QUESTIONNAIRE FOR FORMER PARTICIPANTS OF THE FIRST, SECOND, THIRD AND  
FOURTH "INTERNATIONAL COURSE ON DOMESTIC WASTE WATER TREATMENT  
TECHNIQUES", SABESP - JICA**

This questionnaire survey aims to collect necessary information, opinions and comments of former participants of the first, second, third and fourth courses of the **TCTP – SABESP – JICA** international training program on "Domestic Waste Water Treatment Techniques".

You are kindly requested to answer the following questions (in English, Spanish or Portuguese). Your frank opinions and constructive suggestions are needed.

**I – GENERAL INFORMATION**

- (1) Your name: \_\_\_\_\_
- (2) Position: \_\_\_\_\_
- (3) Organization: \_\_\_\_\_
- (4) Country: \_\_\_\_\_
- (5) Year of your attendance: \_\_\_\_\_
- (6) Contact address: \_\_\_\_\_
- (7) Tel: \_\_\_\_\_  
Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_

(8) Please, give a brief outline of your current duties:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(9) Please, briefly explain the current working conditions in your field of activities at your organization and/or your country (if you are involved in any plans / projects, please briefly describe them).

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## II – EVALUATION OF THE COURSE

**Q1 -** How do you evaluate the organization of the Course?

1.  Good
2.  Fair
3.  Poor

Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_

**Q2 -** To what degree have you understood the knowledge and skills introduced in the Course?

1.  Almost fully (more than 80%)
2.  Some degree (more than 50%)
3.  A little (equal or less than 50%)

**Q3 -** How do you evaluate the ability of lecturers?

1.  Good
2.  Fair
3.  Poor

Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_

**Q4 -** How do you evaluate the textbooks (other materials) and training / demonstration equipment?

1.  Good
2.  Fair
3.  Poor

Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_

**Q5 -** How do you evaluate the training curriculum?

1.  Good
2.  Fair
3.  Poor

Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_

**Q6 -** What subject(s) presented in the course most aroused your interest? (List 2, starting with the most important).

1. \_\_\_\_\_
2. \_\_\_\_\_

**Q7 -** In your opinion, what subject(s) presented in the course should be more detailed / deepened? (List 2, starting with the most important).

1. \_\_\_\_\_
2. \_\_\_\_\_

**Q8 -** In your opinion, what subject(s) that were NOT presented in the course should be introduced? (List 2, starting with the most important).

1. \_\_\_\_\_
2. \_\_\_\_\_

**Q9 -** Did the contents of the Course meet the expectations you had when applying for the Course?

1.  Fully met (more than 80%)
2.  Some degree (more than 50%)
3.  A little (equal or less than 50%)

Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_

**Q10 -** Was the technology presented in the training course already known by you?

1.  Yes
2.  Yes, but not in deep
3.  No

**Q11 -** From the point of view of technology transfer, was this training course effective?

1.  Yes
2.  Partially
3.  No

Please describe the reason for your answer in detail: \_\_\_\_\_  
\_\_\_\_\_

**Q12 -** Have you changed position in the organization you belong to since returning to your country from the Course?

1.  Yes. Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_
2.  No

**Q13 -** Have you changed jobs since returning to your country from the Course?

3.  Yes. Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_
4.  No

**Q14 -** Are the knowledge and skills you acquired through the Course useful in your daily work?

1.  Very much (more than 80% of the knowledge and skills)
2.  Some degree (more than 50%)
3.  A little (equal or less than 50%)

Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_

**Q15 -** Have you ever disseminated the knowledge and skills you acquired through the Course after returning to you country?

1.  Yes
  - a) Seminar
  - b) Workshop
  - c) Report to your boss and coworkers
  - d) Circulation of the textbooks
  - e) Through your daily work
  - f) Others. Mention: \_\_\_\_\_

2.  No. Please describe the reason in detail: \_\_\_\_\_  
\_\_\_\_\_

**Q16 -** Have you proposed and/or implemented changes and/or new projects in the organization where you work by utilizing the knowledge and skills you acquired through the Course? If YES, what were the reach and benefits of these activities for the local population? (List 2, starting with the most important).

1. \_\_\_\_\_

Benefits: \_\_\_\_\_

2. \_\_\_\_\_

Benefits: \_\_\_\_\_

**Q17 -** How would you like to utilize the knowledge and skills you acquired through the Course in the future? (List 2, starting with the most important).

1. \_\_\_\_\_

2. \_\_\_\_\_

**Q18 -** From the point of view of the development needs and policies of your Country, was this training course important?

1.  Yes

2.  Partially

3.  No.

Please describe the reason for your answer in detail: \_\_\_\_\_

\_\_\_\_\_

**Q19 -** Do you have any problems in utilizing the knowledge and skills you acquired through the Course into your present job?

1.  Yes

a) Lack of trained personnel

b) Lack of equipment

c) Lack of funds

d) Lack of foreign experts

e) Others. Mention: \_\_\_\_\_

\_\_\_\_\_

2.  No. Please describe the reason in detail: \_\_\_\_\_

\_\_\_\_\_

**Q20 -** For you, what is the biggest benefit of the Course?

\_\_\_\_\_

**Q21 -** In your opinion, what is the biggest benefit of the Course for your organization?

\_\_\_\_\_

**Q22 -** Do you still keep in touch with persons related to the Course after returning to your country?

1.  Yes

a) Other participants

b) Teachers / lecturers (including Japanese experts)

c) Others. Mention: \_\_\_\_\_

\_\_\_\_\_

2.  No. Please describe the reason in detail: \_\_\_\_\_

\_\_\_\_\_

**Q23** - If the answer for the previous question (Q22) was YES, what kind of relationship do you keep?

- a) Exchange of technical information via Internet, and others
- b) Visiting other participants organizations / Country
- c) Receiving the visit of other participants to your organization / Country
- d) Invitation to lecturers to come to your organization / Country
- e) Others. Mention: \_\_\_\_\_

**Q24** - Do you need support for disseminating and utilizing the knowledge and skills you acquired through the Course?

1.  Yes, from who?
  - a) Government of my country
  - b) Government of Japan (including JICA)
  - c) Implementing organization of the course (SABESP)
  - d) Others. Mention: \_\_\_\_\_

2.  No

**Q25** - If the answer for the previous question (Q24) was YES, please describe the contents of the support you need in detail: \_\_\_\_\_

**Q26** – Do you know the Course was supported by the Government of Japan?

1.  Yes
2.  No

**Q27** - What are the merits and demerits in participating in an international course compared with a training in your country or in Japan in terms of language, technological level, cultural aspect among others?

a) Merits: (List 2, starting with the most important).

1. \_\_\_\_\_
2. \_\_\_\_\_

b) Demerits: (List 2, starting with the most important).

1. \_\_\_\_\_
2. \_\_\_\_\_

**Q28** - Did you face any difficulties during your stay in the Country where the course was held? (List 2, starting with the most important).

1. \_\_\_\_\_
2. \_\_\_\_\_

**Q29** - What kind of other training courses do you require the Japanese Government to organize? (List 2, starting with the most important).

1. \_\_\_\_\_
2. \_\_\_\_\_

**Q30** - Please write your recommendations for the better implementation of similar training courses. (List 2, starting with the most important).

1. \_\_\_\_\_
2. \_\_\_\_\_

Thank you very much for your kind cooperation.  
Please, send the filled out questionnaire to the following e-mail:  
**IONE MARISA KOSEKI CORNEJO** - JICA Consultant  
e-mail: [ikoseki@uol.com.br](mailto:ikoseki@uol.com.br)