

3-5 自立発展性

自立発展性とは、わが国の協力が終了した後も、プロジェクト実施による便益が持続されるかどうかを、プロジェクトの自立度を中心に検討する評価項目である。今回、組織・制度的側面、財政的側面および技術的側面から本プロジェクトの自立発展性を検討した結果、全体的にはほぼ満足できるレベルに達しているものの、財政面および技術面にいくつかの不安材料が残っているとの結論を得た。

(1) 組織・制度的側面

以下、DMS cおよびFDAという2つの実施機関の政策的支援の有無、運営管理システム、相互および関連組織との連携の見通しについて検討した結果である。

① 実施機関への政策的支援

FDA、DMS cともに国際的にも必要性が高いとみなされる活動に従事しているため、タイ政府からの政策的支援は継続して得られる見込みである。ただし、DMS cについては輸出食品検査部門への支援に比重が移る可能性がある。

② FDAの運営管理システム

専門家によると、FDAは厳しすぎるほど十分な食品衛生実施体制を持っているが、基準を順守させるマンパワーが不足している。現在、不況により監視員の新規採用がまったくない状況であり、現在の人数で拡大した食品監視・検査活動を行わなければならない。また、カウンターパートからは、FDAは地方の保健事務所との権限関係および強制力が弱いことが問題であるという指摘があった。

③ DMS cの運営管理システム

専門家によると、DMS cにおいては各分析官は決められた分析項目のみを退職するまで分析し続けるシステムになっているため、個人あるいは部ごとに技術を抱え込む傾向があり、他の部や民間分析機関との技術的交流が少ないのが懸念される。

④ FDAとDMS cの連携の見通し

3-4「妥当性」でも述べたように、FDA（行政部門）およびDMS c（分析部門）の連携は効果的な食品衛生実施の必要条件である。両局は、予算配分や意志決定をめぐる一時期険悪な関係になったこともあったが、現在はDMS c元局長がFDA局長に迎えられるなどの人事および専門家の尽力によって、関係は良好である。ただし、両局カウンターパートによると、今後も合同調整委員会のような何らかの調整機関が必要と

のことであり、複数の実施機関によるプロジェクト運営の困難性がうかがえる。

⑤ 関連組織との連携の見通し

FDAの活動はすでに地方自治体および大学との密接な関係のうえに成り立っている。たとえば、瓶詰め飲料水製造パイロットプラントはマヒドン大学栄養研究所と協力して運営している。また、同様の活動である牛乳製造パイロットプラントはスラナリ大学の施設とスタッフを利用して開始されたところである。さらに、地方での啓蒙普及活動を各自治体と共同で開催している、NGOと協力して食品フェスティバルを開催している、大学から検査キットの提供を受けている、などの協力関係があり、これらについての自立発展性は非常に高いと思われる。

また、FDAはタイの食品衛生行政の制度化・効率化を図っており、関係省庁、研究所などの連携をめざしたNational Food Safety Scheme にかかるプロポーザルを準備中である。

(2) 財政的側面

① FDAの予算見通し

1998年度予算は、FDA全体では減少しているが食品関係は増加している（表17）。

表17 FDAの食品関連予算（1997年度、1998年度）

	食品衛生	輸出食品	食品合計
1997年度	22.3	0	22.3
1998年度	19.12	9.84	28.96

単位：百万バーツ
プロジェクト資料より作成

専門家によると、FDAでは試験検査室と移動監視車の維持管理費に対し、1998年度に200万バーツ、1999年度に300万バーツが確保されている。移動監視車の維持管理はこれまでもすべてタイ側予算で行われてきているもので、日本側が1998年度の機材供与で最終のメンテナンスを負担するが、その後も予算措置は継続されると見込まれている。

また、専門家によると、瓶詰め飲料水製造パイロットプラントでは製造した水を販売して得た利益を運営にあて、独立採算をめざしているとのことである。

啓蒙および教育活動については日本側のローカルコストに頼ってきたので、協力が終了すると活動継続は難しいとのことであった。

② DMS cの予算見通し

予算概要は、1997年度4300万6000パーツ、1998年度2800万3000パーツ、1999年度2000万4000パーツと減少を続けている。専門家によると、GC/MS/MSの購入を検討するなど、事業継続の予算措置はある。しかし一方で高額機械の修理費が高く、これを独自予算でまかなっていかれるかどうかは疑問である。

また、経済不況を反映して、食品輸出部（輸出用食品の検査を担当）の予算割合が食品分析部（国内向け食品の検査を担当）と比較して極端に高い。国内の消費者保護という目的を考えると食品衛生関連の予算が充実される必要がある。

(3) 技術的側面

以下では、DMS c、FDAそれぞれが習得・導入した技術の自立発展性および施設・機材の維持管理の見通しを検討した

① DMS cへ移転した技術の定着状況と発展見通し

移転された技術・手法のほとんどが通常あるいはconfirmation、validationのための分析項目にあげられていることから、検査関連技術の定着状況は高いと考えられる。ただし、専門家によると、カウンターパートどうし、あるいは他の部や民間分析機関との技術的交流がほとんどない。検査技術が誰でも行えるような形で完全に定着し、新技術が関係者間で共有されるような仕組みができるためには、個々の手法についてSOPを作成し、Good Laboratory Practice (GLP)の原則を導入する必要がある。SOPは現在作業中であるが、協力期間内の完成は難しい。

カウンターパートによると、DMS cは将来は食品衛生にかかるモニタリング機能をも果たしていきたいとのことである。GLP導入はそのためにも必要である。

② FDAへ移転した技術の定着状況と発展見通し

専門家によると、水と牛乳の検査活動については、検査キットさえ入手できれば継続すると思われる。検査キットは現在市販のものを使用しており、協力終了後も入手可能である。一方、それ以外の食品については、製造工程や検査方法もより複雑になるため現在の技術を適用することは難しいと思われる。冷凍食品や缶詰に関し、業者相手のセミナーを実施したり米国の基準を勉強したりして知識は持っているが、実際に工場に行き効果的な活動ができるようになるためには新たな技術移転が必要である。

なお、カウンターパートはGHP/GMP/HACCPを適用した食品関連規制の見

直しを関連機関とともに行っており、これらについての技術的な自立発展性は高いと思われる。

③ 施設・機材の保守管理状況

両局ともに良好で、今後も引き続き維持されていくと思われる。ただし、カウンターパートによると、高額機器のアクセサリ不足（購入予算不足）およびメーカーによる保守サービスの悪さが不安とのことである。

第4章 総括

4-1 提言と教訓

(1) 実施体制

当初、本プロジェクトの協力計画における懸案事項は、カウンターパート機関が地理的にも離れた食品医薬品局と医科学局の2カ所であり、専門家も2カ所に分かれた配置となり、効果的なプロジェクト運営ができるだろうかという点であった。事実、協力開始から1年半経過した時点における巡回指導調査団派遣の際には、両局の相互調整や意思疎通がスムーズに行われておらず、ミニッツの署名交換ができなかったほどである。

現時点では、両局間によく調整されており、結果として、それが本プロジェクトの達成度を高めることとなっている。食品衛生を強化するためには、行政（監視、啓発）機関と検査機関とが協調することが必須であり、どちらか一方のみを強化するだけであつたら何のインパクトも生まれなかったかもしれない。本プロジェクトが両局間の距離を縮めるのに一役買うことができたのであれば、カウンターパート機関を2カ所として発足させたことは先見的であったといえることができる。しかし、年度計画など両局が調整しながら策定すべき作業が、実際は日本人専門家サイドの原案をもとに各局が個別に実行計画を作成・実施している状況であり、両局の調整に果たした日本人専門家の役割は大きい。プロジェクト終了後も両局間の調整がうまくなされるものか否かは不明である。

なお、近々、医科学局は食品医薬品局の近接地に移転することとなっており、今後、両局の物理的距離は縮まることになっている。

これらの経験から将来当該分野のプロジェクト実施体制を考えるに際し、以下の教訓を役立てるよう提言する。

- ① 食品衛生のプロジェクト実施にあたっては、検査／分析機関のみでなく食品衛生行政を担当する機関をカウンターパートとすることが非常に重要である。
- ② 複数の実施機関をカウンターパートとする場合には、当該機関の間を調整するためのメカニズムが適切に措置されるべきである。

(2) 実施計画

プロジェクト発足時点においてはPDMは作成されておらず、1998年8月、PCM手法（評価分析）分野の短期専門家の派遣によってPDMが策定された。今回は、このPDM

を下地にプロジェクト実績を効率性などの観点から評価を行ったわけであるが、PDMにおける上位目標、プロジェクト目標、成果、活動などはR/Dに記載されているものと内容的には大差ないので、結果として、R/Dに基づく活動の評価となっている。ただし、R/Dは必ずしも具体的に要請内容を実現可能な実施計画へとブレイクダウンしたものではなかったため、ワークショップでは、派遣（短期）専門家の専門領域が期待と異なっていたなどのマスナス評価も聞かれた。より早期に、参加型計画手法でより詳細な実施計画を立てることができていれば、要請事項と日本側投入との乖離は防げたであろう。

これらの経験から将来のプロジェクト実施を考えるに際し、以下の教訓を役立てるよう提言する。

プロジェクトの計画策定およびモニタリング・評価をより効果的に行うためには、PCMなどを用いたプロジェクト・マネジメントがプロジェクト・サイクルの初期段階から適切に行われるべきである。

4-2 今後の協力のあり方

プロジェクトが成功裏に進捗していることもあり、タイ側からはプロジェクト期間延長への強い要望が表明された。また、調査団訪タイに先んじて、石原リーダー宛に延長要請のレターも寄せられている。

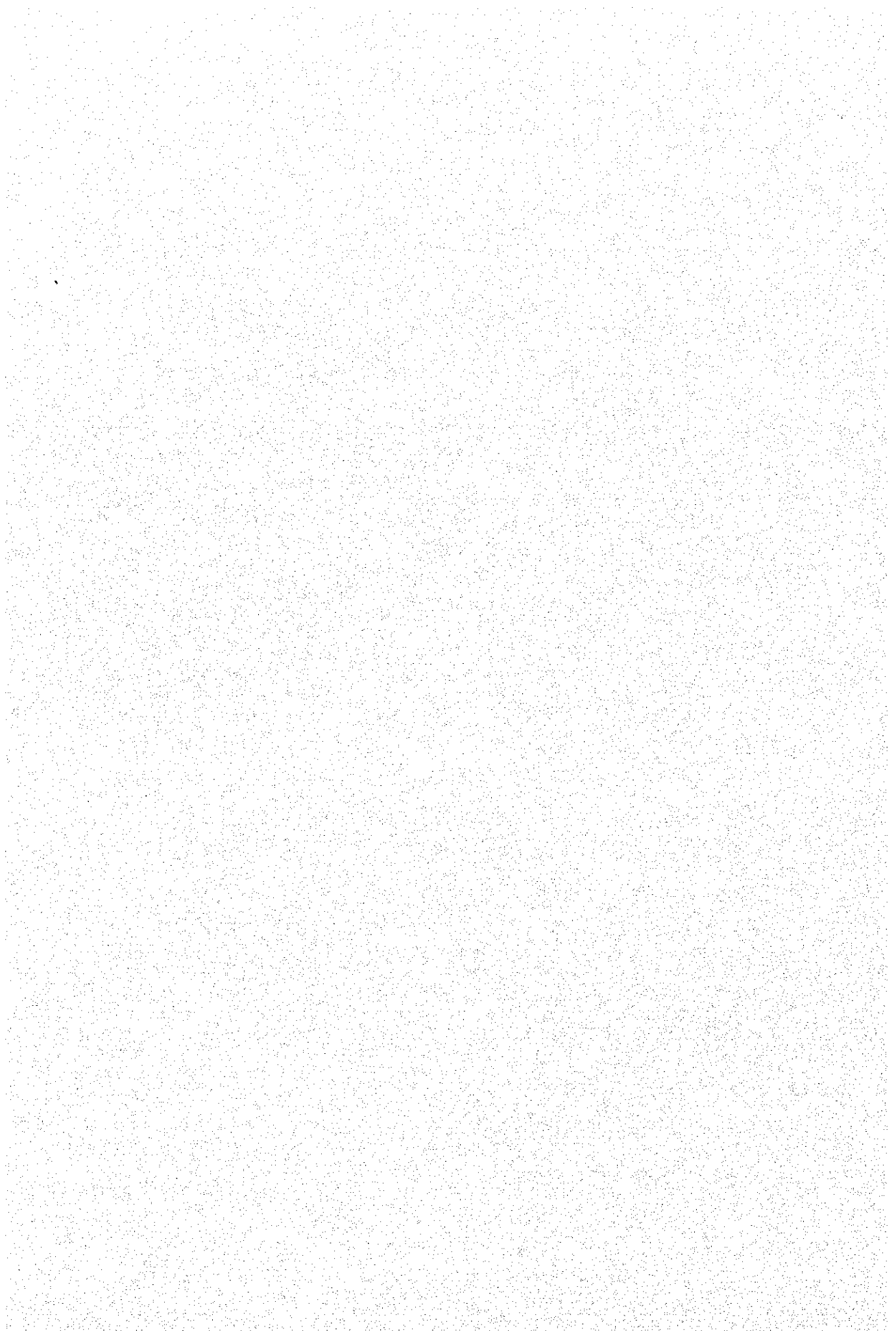
当方としては、延長のための理由（R/D記載事項のうち、比較的短期間で実現可能な積み残し活動があることなど）に乏しく、単純な延長は困難である旨を説明したが、単発専門家派遣など、プロジェクト成果を発展させるための他のスキームの活用は可能であることを示唆した。

それに対し、タイ側からは、プロジェクト成果を周辺諸国へ技術移転できるレベルまで高めたい希望が各部局（DTEC、MOPH、FDA、DMS c）から表明された。これはPDMの上位目標でも想定していなかったことで、このような意識を生み出したことは本プロジェクトの大きなインパクトであるといえよう。近い将来、タイにおいて食品衛生分野の第三国研修が実現できるべく、必要な協力を続けることは有意義であると考えられる。

FDAならびにDMS cが第三国研修を実施できるようになるためには、さらなるGLPの確立と強化が必要であり、タイ側もその認識を持っている。GLP確立と強化に着目して、専門家派遣、研修員受入、機材供与などの協力を継続することを考慮すべきであろう（これ

らは、それぞれ単独のスキームの組合せで実現可能であるが、プロジェクト延長として説明可能であれば、延長の形式のほうが自然かもしれない。その際は、「実施機関の技術レベルを第三国研修が実施可能なものにする」ことを上位目標として、PDMを再設定することが必要である）。

資 料

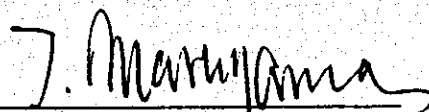


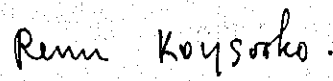
**MINUTES OF DISCUSSIONS
BETWEEN
THE JAPANESE EVALUATION TEAM
AND THE AUTHORITIES CONCERNED
OF THE GOVERNMENT OF THE KINGDOM OF THAILAND
ON JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR STRENGTHENING OF FOOD SANITATION ACTIVITIES**

The Japanese Evaluation Team (the Team) organized by the Japan International Cooperation Agency and headed by Dr. Tsutomu Maruyama, visited the Kingdom of Thailand from July 27 to August 14, 1998. During its stay in the Kingdom of Thailand, the Team had a series of discussions to jointly evaluate the achievement of the Project for Strengthening of Food Sanitation Activities and to exchange views on the possible technical cooperation programs to be further implemented to fulfill the Master Plan of the Record of Discussions signed on March 28, 1994.

As a result of the discussions, the Japanese and Thai sides agreed upon the matters referred to in the document attached hereto.

Nonthaburi, August 13, 1998


Dr. Tsutomu Maruyama
Leader
Japanese Evaluation Team
Japan International Cooperation Agency
Japan


for. Dr. Prakrom Vuthipongse
Permanent Secretary
Ministry of Public Health
The Kingdom of Thailand

ATTACHED DOCUMENT

1. Confirmation of the Joint Evaluation Report
 - 1.1 The Joint Coordinating Committee of the Project for Strengthening of Food Sanitation Activities in the Kingdom of Thailand (the Project) confirmed the Joint Evaluation Report, which was prepared and submitted by the Japanese Evaluation Team (the Team) and the Thai side.
 - 1.2 Both sides agreed that the Project has obtained:
 - A) considerably high level of efficiency and effectiveness;
 - B) several direct and indirect positive impacts on Thai consumers and manufacturers as well as the implementing agencies and other government organizations;
 - C) some prospects on future impacts such as establishment of a food sanitation training center for Southeast Asian countries, food safety for consumers not only in Thailand but also in foreign countries, and good reputation of Thai food among importing countries;
 - D) significantly high level of relevance;
 - E) sufficient level of sustainability.
2. Measures to be taken during the remaining period of the technical cooperation period
 - 2.1 Both sides agreed that the following measures are necessary during the remaining technical cooperation period stipulated in the Record of Discussions (R/D).

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2.2 Measures to be taken by the Japanese side

2.2.1 To continue the technical transfer by the Japanese long-term experts in the fields of:

- A) Team Leader (until March 31, 1999);
- B) Coordinator (until March 31, 1999);
- C) Chemical Analysis of Food (until March 31, 1999);
- D) Food Sanitation Administration (until March 31, 1999).

2.2.2 To dispatch Japanese short-term experts upon request by the Thai side for Japanese fiscal year 1998/99.

2.2.3 To provide the equipment requested by the Thai side for Japanese fiscal year 1998/99.

2.2.4 To continue accepting the Thai personnel concerned with the Project for training in Japan in the fields of:

- A) Physical determination;
- B) Food sanitation administration;
- C) Analysis of food additives, food composition analysis.

2.3 Measures to be taken by the Thai side

To provide all the necessary inputs as agreed upon in the R/D.

3. Recommendations

3.1 For the remaining months of Japanese technical cooperation and for the future orientation of the Department of Medical Sciences (DMSc) and the Food and Drug Administration (FDA), Ministry of Public Health, the Team and the Thai side recommended that:

- A) Laboratory technology and knowledge on food sanitation should be disseminated not only to Thailand but also to the neighboring countries.

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- B) The Target area of the activities achieved effectively in the project should be extended.
- C) Efficiency of food inspection should be further improved.
- D) Laboratory technology in food sanitation should be upgraded and analytical methodology development activities should be strengthened.
- E) The system of collecting and utilizing technical information related to food sanitation should be strengthened and essential data should be shared among persons concerned.
- F) Implementation of GLP is needed to get reliable results, and necessary conditions for it should be prepared.
- G) More specific indicators necessary for monitoring of food sanitation activities of the Project should be set.

4 Further Discussion

- 4.1 The Thai side presented a proposal concerning extension of the Project in order to further strengthen the technical capabilities of DMSc and FDA.
- 4.2 The Team responded that although the Thai side shall be primarily responsible for sustaining the project outcomes after the termination of technical cooperation, further cooperation may contribute to the establishment of the capabilities of DMSc and FDA, which have potentiality to be a focal point of food sanitation training in Southeast Asia.
- 4.3 The Japanese side suggested that some schemes of technical cooperation shall be necessary under limitations of the budget for Japanese official development assistance.

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JOINT EVALUATION REPORT
ON THE PROJECT
FOR
STRENGTHENING OF FOOD SANITATION ACTIVITIES
IN THE KINGDOM OF THAILAND

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
JAPAN

MINISTRY OF PUBLIC HEALTH
THE KINGDOM OF THAILAND

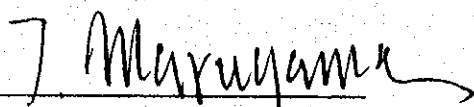
AUGUST 13, 1998

Nonthaburi, THE KINGDOM OF THAILAND

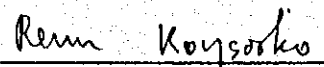
MUTUALLY ATTESTED AND SUBMITTED
TO ALL CONCERNED

AUGUST 13, 1998

Nonthaburi, THE KINGDOM OF THAILAND



Dr. Tsutomu Maruyama
Leader
Japanese Evaluation Team
Japan International Cooperation Agency
Japan



Dr. Prakrom Vuthipongse
Permanent Secretary
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The Kingdom of Thailand

CHAPTER 1: INTRODUCTION

1.1 Background for the Evaluation

The Japanese Evaluation Team (the Team) organized by Japan International Cooperation Agency (JICA) visited the Kingdom of Thailand from July 27 to August 14, 1998 for the purpose of the joint terminal evaluation with the Thai side of the Project for Strengthening of Food Sanitation Activities in the Kingdom of Thailand, to which Japanese technical cooperation has been provided and is scheduled to terminate on March 31, 1999, according to the Record of Discussions (R/D) signed on March 28, 1994.

The result of the evaluation study is expected to serve as a basis for decision-making upon the future orientation of the project and as lessons learned about design, implementation and management of future projects in food sanitation and other fields.

1.2 Methodology of Evaluation

The evaluation study applied the approach of Project Cycle Management (PCM) in the following aspects:

- 1) It was based on the Project Design Matrix (PDM). A PDM is a summary table of the project's objectives, outputs, activities, inputs, indicators, means of verification of indicators and important assumptions, which are logically related to each other.
- 2) The evaluation process followed the steps of PCM monitoring and evaluation method.
- 3) The project staff (experts and counterparts) jointly worked to assess the achievement of the project. Two evaluation workshops were held for this purpose.

The PCM evaluation method consists of the following steps:

- 1) **Narrative Summary:**
 - Review the existing project planning documents;
 - Prepare PDM for evaluation;
- 2) **Evaluation Design :**
 - Define evaluation questions corresponding to the five evaluation issues, i.e., efficiency, effectiveness, impact, relevance and sustainability;
 - Identify what information/ data are needed to answer the evaluation questions;
 - Select data collection methods;
- 3) **Data Collection :**
 - Collect information/ data identified above;
- 4) **Data Analysis :**
 - Find answers to the evaluation questions;
 - Draw conclusion on the five evaluation questions;
- 5) **Conclusion/ Reporting :**
 - Draw overall conclusion and recommendations;
 - Present the evaluation result to the authorities concerned.

1.3 Key Issues Addressed

The evaluation was proceeded along with the following five issues, which are the major points of consideration when assessing development projects.

- 1) **Efficiency:** a measure of the "productivity" of the implementation: how economical are the inputs converted into outputs
- 2) **Effectiveness:** a measure of the extent to which a project achieves the objectives
- 3) **Impact:** the positive and negative changes produced – directly or indirectly – by a project
- 4) **Relevance:** the degree to which the objectives of a project are significant and worthwhile in relation to priority needs and concerns
- 5) **Sustainability:** the extent to which partner country institutions are able to pursue the objectives after project assistance by donor countries is over

1.4 Sources of Information Used for Evaluation

- 1) Project planning documents such as R/D, Tentative Schedule of Implementation (TSI) and PDM.
- 2) Reports of Japanese experts.
- 3) Reports prepared by the counterpart organizations, stating activities and inputs implemented for the project.
- 4) Result of two evaluation workshops.
- 5) Interviews to Japanese experts.
- 6) Interviews to counterparts.
- 7) Interviews to manufacturers.
- 8) Record of inputs from both sides.

CHAPTER 2: BRIEF DESCRIPTION OF THE PROJECT

2.1 Date of Request January 6, 1992.

2.2 Background The expansion of food industry in Thailand is dramatically rapid in order to keep pace with the increasing demands of the markets. This makes such a burden load for the work of control agencies since food manufacturers especially in medium and small scale still lack knowledge in good manufacturing practices and have no quality control management in the factories. Furthermore, the consumers have limited sense of safety awareness due to deficiency in health education.

According to the Seventh National Health Development Plan (1992-96), the Health Consumer Protection Policy is the first priority among the others. The Ministry of Public Health has been playing an important role in promotion of consumer protection especially through the improvement of food sanitation control system.

In such a context, the Government of Thailand requested to the Government of Japan for technical cooperation to strengthen food sanitation activities undertaken by the concerned organizations of the Ministry of Public Health.

In response to the request, the Government of Japan, through JICA, dispatched the Preliminary Survey Team followed by the Experts Survey Team and the Implementation Survey Team to discuss and agree with the Thai side authorities concerning the framework of the project implementation. The R/D was then signed on March 28, 1994.

2.3 Duration of
Technical
Cooperation 5 years from April 1, 1994 to March 31, 1999

2.4 Objectives and
Outputs The original objectives, outputs and activities of the project stated in the R/D were reviewed by the project team using the PCM approach, and rephrased as follows:

Overall Goal:
Illness by harmful food is reduced

Project Purpose:
Food safety for consumers is ensured.

Outputs:
1) Food control activities are strengthened.
2) Hygiene management by food manufacturers becomes sufficient.
3) Consumer awareness for food sanitation is improved.
(Authorized on December 2, 1997.)

2.5 Target Group Thai consumers

2.6 Implementing
Agencies The Department of Medical Sciences (DMSc) and the Office of Food and Drug Administration (FDA), Ministry of Public Health

CHAPTER 3: FINDINGS AND CONCLUSIONS

3.1 PDM for Evaluation As the first step of the evaluation, the Team and the Thai counterparts reviewed the PDM prepared in August 1997 and endorsed on December 2, 1997. Accordingly, both sides modified some indicators in a way that they could measure the achievement of the project purpose and the outputs more precisely.

The agreed-on PDM for evaluation is attached as ANNEX D.

3.2 Project Implementation The both sides confirmed that the project has mostly fulfilled the following activities and inputs along with the plan stated in the R/D, TSI and PDM.

- 3.2.1 Activities**
- <For Output 1: "food control activities are strengthened">
- 1-1 Experts transfer analytical techniques to counterpart.
 - 1-2 Organize training courses to middle-level staff.
 - 1-3 Experts provide consultation on food inspection.
 - 1-4 Train Thai counterparts in Japan.
 - 1-5 Develop test kits for coliform and total bacterial plate count for water.
 - 1-6 Survey on some food poisoning and microorganism in Bangkok.
 - 1-7 Establish SOP for inspection method.
 - 1-8 Organize collaborative meetings among Government officers concerning food safety.
 - 1-9 Conduct mobile service on training/ testing.
- <For Output 2: "hygiene management by food manufacturers becomes sufficient">
- 2-1 Develop training materials (audiovisuals, posters, cartoons, etc.)
 - 2-2 Conduct training courses & seminars for QC personnel of food factories.
 - 2-3 Introduce Pre-Certification system to the manufacturers.
 - 2-4 Train small-scale drinking water manufacturers
 - 2-5 Provide hygienic & sanitation education
 - 2-6 Design and conduct model development for small scale drinking water
- <For Output 3: "consumers' awareness for food sanitation is improved">
- 3-1 Distribute education materials (videos, posters, leaflets, cartoon, cassette-tapes) to public.
 - 3-2 Organize campaigns (festivals, etc.) on food sanitation in community.
 - 3-3 Distribute videos on milk quality to primary schools.
 - 3-4 Distribute videos for test kits to Government officers, primary schools & consumers.

The detailed information on the implemented activities is found in the *Evaluation Reports* prepared by DMSc and FDA respectively.

3.2.2 Inputs

<Japanese side>

- | | |
|-------------------------------------|---|
| 1) Experts: | Long-term 10 persons
Short-term 24 persons |
| 2) Machinery/equipment | Total 88,867,742 Baht
*Including requested amount
for FY 1998/99. |
| 3) Counterpart training
In Japan | Total 15 persons
(4 persons waiting) |
| 4) Cost sharing for local | Total 19,470,000 Baht
*Including planned amount for
FY 1998/99. |

<Thai side>

- | | |
|------------------------|---|
| 5) Personnel: | DMSc 21 persons
FDA 54 persons
Administrative staff
Secretaries
Drivers |
| 6) Buildings and land: | JICA project office
(DMSc, FDA)
Bottled Drinking Water Pilot
Plant |
| 7) Operation fund: | Total 61,984,891 Baht
DMSc 53,860,891 Baht
FDA 8,124,000 Baht |

The detail of the inputs is found in ANNEX H.

3.3 Efficiency

The efficiency of the project is considerably high for the following reasons.

- 1) The project has obtained the intended outputs to a satisfactory degree. (See the result of the first workshop in ANNEX F)
- 2) The inputs by both Japanese and Thai sides were mostly necessary and sufficient to produce the intended outputs, except that some dispatch of the Japanese experts in terms of:
 - the difficulty in recruiting suitable personnel in Japan;
 - the delayed procedure of the Japanese side;
- 3) The counterpart personnel trained in Japan have transferred the learned techniques and knowledge to sufficiently large number of other counterparts, local officials, manufacturers and consumers through training, seminars and various educational media. (See the *Evaluation Reports* prepared by DMSc and FDA respectively.)
- 4) The machinery and equipment provided by the Japanese side is fully utilized. (The detailed items are listed in ANNEX H)

3.4 Effectiveness

The effectiveness of the project is considerably high for the following reasons.

- 1) As long as bottled drinking water and milk are concerned, the performances of the indicators show the improvement of safety of these products to a satisfactory level. (See the result of the first workshop in ANNEX F)
- 2) All the three outputs have significantly contributed to achievement of the project purpose. (See the result of the second workshop in ANNEX G)
- 3) Since the PDM was introduced only last year, scope of the project purpose was not clearly confined; thus, it is difficult to judge the degree of achievement of the purpose for all food types.
- 4) The project purpose could have been achieved to more degree if the inputs were implemented as planned and the counterparts fully acquired the necessary skills of laboratory technology.

3.5 Impact

Regarding the overall goal ("Illness by harmful food is reduced"), the degree of achievement cannot be judged in this evaluation study for the following reasons.

- 1) The indicator currently set for overall goal is "Decrease in food poisoning cases", and the statistics show increase. (See the result of the first workshop in ANNEX F)
- 2) In order to measure reduction of food-related illness, the statistics by cause of food poisoning and the concrete base line data are needed. At present, such figures are not available.

Apart from the objectives stated in the PDM, the following direct impacts have been produced by the project outcomes.

- 1) Strengthening of surveillance system.
- 2) Preparation for National Food Safety Scheme.

In addition, the following direct and indirect impacts will be produced if the activities are further strengthened.

<Direct impact>

- 1) Establishment of a food sanitation training center in Southeast Asia.

<Indirect impacts>

- 2) Food safety for consumers not only in Thailand but also in foreign countries.
- 3) Good reputation of Thai food among importing countries.

3.6 Relevance

The project is highly relevant for the following reasons.

- 1) The objectives of the project quite match the policies of Thailand and Japanese development assistance as well as the consumers' needs.
- 2) Thailand was the most relevant as the counterpart country in food sanitation in Asia because it could spare enough human and material resources for food sanitation improvement.
- 3) The inclusion of both analytical and administrative organizations, i.e., DMSc and FDA respectively, was a right decision; otherwise, food safety would not have been achieved.

3.7 Sustainability

The overall sustainability of the project reached to a sufficient level though there is some concern as follows:

- 1) The Team highly regards both DMSc's and FDA's budgetary efforts under the severe economic circumstances. However, the Team doubts that financial sustainability should be low as long as JICA is needed as the major supporter.
- 2) As for technical aspects, the Team confirmed that SOPs have been prepared for a number of techniques and the conditions for introduction of GLP are being met to certain extent. The transferred techniques will be fully established and ready for use by any concerned personnel if there are more opportunities for the counterparts to practice, present and exchange outputs of their activities.

3.8 Conclusion

In conclusion, the project has been successfully implemented and will mostly achieve its outputs by the end of the technical cooperation period. This outcome has produced quite an important impact that DMSc and FDA are now willing and have potentiality to function as a center of information and training in food sanitation in Southeast Asia. If realized, the mechanism would be beneficial not only to Thai consumers but also to concerned organizations and people in neighboring countries.

Toward such a future orientation, the acquired techniques must be firmly established, to which some additional external support would greatly contribute.

3.9 Recommendations

For the remaining months of Japanese technical cooperation and for the future orientation of DMSc and FDA, it is recommended that:

- 1) Laboratory technology and knowledge on food sanitation should be disseminated not only to Thailand but also to the neighboring countries.
- 2) The target area of the activities achieved effectively in the project should be extended.
- 3) Efficiency of food inspection should be further improved.
- 4) Laboratory technology in food sanitation should be upgraded and research activities for this should be strengthened.
- 5) The system of collecting and utilizing technical information related food sanitation should be strengthened and essential data should be shared among persons concerned.
- 6) Enforcement of GLP is needed to get reliable results, and necessary conditions for it should be prepared.
- 7) More specific indicators necessary for monitoring of food sanitation activities should be set.

3.10 Lessons Learned

For effective planning, implementation and evaluation of future projects in food sanitation and other fields, the following lessons are drawn from the project.

- 1) It is of vital importance for realization of food sanitation that both analytical and administrative agencies are keeping in close contact with each other.
- 2) For this, a mechanism to coordinate different agencies must be properly designed.
- 3) PCM approach should be introduced at the very beginning of a project cycle.

ANNEX

- A) **Schedule of Evaluation Study**
- B) **Composition of the Japanese Evaluation Team**
- C) **List of Personnel Consulted (including workshop attendant lists)**
- D) **Project Design Matrix for Evaluation**
- E) **Tentative Schedule of Implementation**
- F) **Result of the First Evaluation Workshop (Program and Format 1)**
- G) **Result of the Second Evaluation Workshop (Program and Format 2)**
- H) **Record of Implementation of Inputs**
 - **Japanese Side**
 - **Thai Side**
- I) **Proposal of Extension Activity on Good Laboratory Practices**
- J) **Proposal of the Project “Training Center”**

A) Schedule of Evaluation Study

Monday	Jul 27	Arrival of PCM consultant by TG641
Tuesday	Jul 28	Visit to JICA Office
Wednesday	Jul 29	Preparatory meeting with experts and counterparts at FDA Preparatory meeting with experts and counterparts at DMSc, Yod-se
Thursday	Jul 30	Preparation for the first workshop at DMSc, Yod-se Data collection
Friday	Jul 31	First Evaluation Workshop at National Institute of Health, Nonthaburi
Saturday	Aug 1	Day of pigeonhole data
Sunday	Aug 2	Ditto
Monday	Aug 3	Data collection at DMSc, Yod-se
Tuesday	Aug 4	Ditto
Wednesday	Aug 5	Arrival of the other members of Japanese Evaluation Team by JL717
Thursday	Aug 6	Courtesy call on Dr. Renu, Director General of DMSc Courtesy call on Dr. Pakdee, Deputy Secretary General of Ministry of Public Health Courtesy call on Dr. Chalermchai Choomuang, Deputy Secretary General of FDA Inspection of Mobile unit bus Courtesy call on Mr. Banchong
Friday	Aug 7	Second Evaluation Workshop at DMSc, Nonthaburi
Saturday	Aug 8	Preparation for Joint Evaluation Report
Sunday	Aug 9	Ditto
Monday	Aug 10	Inspection of activities and laboratory of FDA Courtesy call on Secretary General of FDA Inspection of activities of DMSc
Tuesday	Aug 11	Observation of milk factory Observation of Water Plant at Sarayah, Mahidol University
Wednesday	Aug 12	Preparation for Joint Evaluation Report
Thursday	Aug 13	Meeting with FDA, DMSc, JICA and Japanese Evaluation Team on Joint Evaluation Report Joint Coordination Committee at DMSc, Nonthaburi Signing Ceremony at Permanent Secretary Office
Friday	Aug 14	Departure of Japanese Evaluation Team by TG640

B) Composition of Japanese Evaluation Team

- | | | | |
|----|----------------------|---|--|
| 1. | Dr. Maruyama Tsutomu | Leader/ Microbiology | Professor, Faculty of Environmental Health Science, Azabu University |
| 2. | Dr. Hashizume Akira | Deputy Team Leader/Cooperation Planning | Director, First Medical Cooperation Department, JICA |
| 3. | Dr. Saito Yukio | Food Analysis | Deputy Director-General, National Institute of Health Sciences |
| 4. | Dr. Kimura Hirotsugu | Food Sanitation Administration | Deputy Director, Food Sanitation Division, Environmental Health Bureau, Ministry of Health and Welfare |
| 5. | Ms. Haraguchi Takako | Project Evaluation | Project Manager, Global Link Management, Inc. |

C) List of Personnel Consulted

P: Those who participated in the evaluation workshops on July 31 and August 7, 1998.
 O: Those who observed the evaluation workshops on July 31 and August 7, 1998.

<Thai Side>

Ministry of Public Health

- | | |
|--------------------------|----------------------------|
| 1) Dr. Pakdee Phothisiri | Deputy Permanent Secretary |
|--------------------------|----------------------------|

Department of Medical Sciences, Ministry of Public Health (DMSc)

- | | |
|------------------------------------|----------------------------------|
| 1) Dr. Renu Koysooko | Director General |
| P 2) Dr. Chakradharm Dharmasakti | Deputy Director-General |
| P 3) Ms. Tasanee Chulamorakot | Director, Food Analysis Division |
| P 4) Ms. Chanchai Jaengsawang | Director, Export Food Division |
| P 5) Mr. Prakai Boriboon | |
| P 6) Ms. Orana Chaiworarat | |
| P 7) Mr. Tanongpan Satjapala | |
| P 8) Ms. Churairat Rongrodejanarak | |
| P 9) Ms. Kanokporn Atisook | |
| P 10) Ms. Suthatip Vitchivuttivong | |
| P 11) Ms. Supatra Im-erb | |
| P 12) Ms. Piyanart Leewiwat | |
| P 13) Ms. Urarat Vuttigornphan | |
| P 14) Ms. Pensri Rodma | |
| P 15) Ms. Waraporn Piyasirananda | |
| P 16) Ms. Yupa Chantapanyarat | |
| P 17) Ms. Wanthanee Kamlert | |

Office of Food and Drug Administration, Ministry of Public Health (FDA)

- | | |
|------------------------------|--|
| 1) Dr. Mongkol Na-Songkhla | Secretary General |
| 2) Dr. Chalermchai Choomuang | Deputy Secretary General |
| 3) Ms. Chantana Jutiteparak | Principal Expert in Food and Drug Standard |
| P 4) Ms. Narumol Gomolsevin | Senior Expert in Food Safety and Consumption |

- | | | | |
|---|-----|------------------------------------|---|
| | 5) | Dr. Chanin Chareonpong | Senior Expert in Food Standard |
| P | 6) | Ms. Suboonya Hutungkabodee | Director, Technical Division |
| P | 7) | Ms. Daranee Mookajornpan | Director, Food Control Division |
| | 8) | Ms. Veravan Chavalitumrong | Director, Public Relation and
Advertisement Control Division |
| | 9) | Ms. Wanida Natesiri | |
| | 10) | Ms. Hataya Kongchuntuk | |
| P | 11) | Ms. Pairin Radomwiwat | |
| | 12) | Ms. Warunce Sensupa | |
| P | 13) | Mr. Nirat Tiasuwan | |
| | 14) | Ms. Yuthana Norapoompipat | |
| | 15) | Ms. Somchai Komolyingcharoen | |
| P | 16) | Dr. Tipvon Parinyasiri | |
| | 17) | Ms. Chatchai TangsonSauwan | |
| P | 18) | Ms. Jongkolnee Vithayarungruangsri | |
| P | 19) | Ms. Parichut Junplung | |
| P | 20) | Ms. Wilailuk Chinnaboon | |

Department of Technical and Economic Cooperation (DTEC)

- | | | | |
|---|----|-------------------------------|---|
| | 1) | Mr. Banchong Amornchewin | Chief, Japan Sub-Division, External
Cooperation Division I |
| O | 2) | Miss Duanghathai Chenchavitha | Monitoring and Evaluation Sub-Division,
Planning Division |
| | 3) | Ms. Kanistha Thawoot | Programme Officer, Japan Sub-Division,
External Cooperation Division |
| | 4) | Ms. Pin Sridurongkatum | Programme Officer, Japan Sub-Division,
External Cooperation Division I |

<Japanese Side>

Japanese Experts

- | | | | |
|---|----|-----------------------|--------------------------------|
| P | 1) | Dr. Ishihara Teruyuki | Team Leader |
| P | 2) | Mr. Usui Tetsuro | Coordinator |
| P | 3) | Ms. Ota Mitsue | Chemical Analysis of Food |
| P | 4) | Mr. Kanie Makoto | Food Sanitation Administration |

○ 5) Mr. Yamaguchi Keiji

Expert to Food Sanitation Division,
Department of Health, Ministry of Public
Health

Embassy of Japan

1) Mr. Yamada Hideki

First Secretary

JICA Thailand Office

1) Mr. Iwaguchi Kenji

Resident Representative

2) Mr. Sumi Yoshitaka

Deputy Resident Representative

○ 3) Mr. Usui Gen

Assistant Resident Representative

D) Project Design Matrix for Evaluation

Project Design Matrix (PDM) for Evaluation Page 1

The Project for Strengthening of Food Sanitation Activities		August 1, 1997	
Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Illness by harmful food is reduced.	Decrease in no. of acute food poisoning cases.	Report of the epidemiology Division, Ministry of Public Health.	Government policy for food sanitation will not change.
Project Purpose Food safety for consumers is ensured	<ol style="list-style-type: none"> 1. Decrease in no. of post-marketing food samples which do not comply with the standards. 2. Increase in no. of registered food products 3. Increase in frequency of inspection <ol style="list-style-type: none"> 1-1 Increase in no. of analytical method techniques upgraded. 1-2 Increase in no. of inspection 1-3 Increase in no. of testing items. 1-4 Increase in no. of small scale manufactures inspected. 1-5 Increase in no. of well trained personnel in FDA & DMSc 2-1 Decrease in no. of violation cases identified in manufactures. 2-2 Increase in no. of factories which introduced HACCP system. 2-3 Increase in no. of manufactures registered under Pre-certification System. 2-4 Increase in no. of small scale manufactures which accumulated knowledge and technique of QA/QC system. 2-5 Increase in no. of registration products. 3-1 Increase in no. of consumer complaints 	FDA reports DMSc reports	Outbreaks due to food related communicable diseases do not increase than now.
Outputs 1. Food control activities are strengthened 2. Hygiene management by food manufactures becomes sufficient. 3. Consumer awareness for food sanitation is improved.		<ol style="list-style-type: none"> 1-1 Reports of the Joint Coordinating Committee Meeting 1-2 & 1-3 Project evaluation reports 1-2 & 1-3 Annual reports of FDA & DMSc 1-4 Inspection reports 1-5 Experts' report 2-1 & 2-5 Annual reports of FDA 2-2 & 2-3 Interviews & observations 2-4 Course evaluation reports 3-1 FDA reports 	<ol style="list-style-type: none"> 1. Producers' (in agriculture, forestry & fishery) attitude against sanitation management will not worsen. 2. Food control activities by provincial health offices cover the whole country. 3. Department of Health will take responsibility for sanitation management of street stalls & vendors.

Project Design Matrix (PDM) for Evaluation Page 2

Narrative Summary	Inputs	Important Assumptions
<p>Activities</p> <p>1-1 Experts transfer analytical techniques to counterpart.</p> <p>1-2 Organizing training courses to middle level staff.</p> <p>1-2-1 Training on food sanitation inspection technique and food administration.</p> <p>1-2-2 Training on new analytical technology.</p> <p>1-3 Experts provide consultation on food inspection</p> <p>1-4 Train Thai counterpart in Japan</p> <p>1-5 Develop test kits for coliform and total bacterial plate count for water.</p> <p>1-6 Survey on some food poisoning and microorganism in Bangkok.</p> <p>1-7 Establish SOP for inspection method.</p> <p>1-8 Organize collaborative meeting among Government officers concerning food safety.</p> <p>1-9 Conduct mobile service on training/testing</p> <p>2-1 Develop training materials (audiovisuals, poster, cartoons, etc)</p> <p>2-2 Conduct training courses & seminars for QC personnel of food factories</p> <p>2-3 Introduce Pre-Certification system to the manufacturers.</p> <p>2-4 Train small-scale drinking water manufacturers.</p> <p>2-5 Provide hygienic & sanitation education</p> <p>2-6 Design and Conduct Model Development for small scale drinking water.</p> <p>3-1 Distribute education materials (Video, posters, leaflets, cartoon, cassette-tapes) to public.</p> <p>3-2 Organize campaigns (festivals etc.) on food sanitation in community.</p> <p>3-3 Distribute videos on milk quality to primary schools.</p> <p>3-4 Distribute videos for test kits to Gov. officers primary schools & consumers.</p>	<p>Thai Side</p> <p>T-1 Counterpart and administrative personnel</p> <p>T-2 Offices and other facilities in DMSc and FDA, utilities</p> <p>T-3 Operational cost</p> <p>Japanese Side</p> <p>J-1 Experts (Long-term)</p> <ul style="list-style-type: none"> - Team Leader - Coordinator - Food analysis on microbiology - Food sanitation administration (Short-term) - Food additives - Food contaminants - Water: chemical analysis - Containers/packages - Composition - Toxic substances - Physical determination - Others upon discussion <p>J-2 Equipment</p> <p>J-3 C/P training in Japan</p> <ul style="list-style-type: none"> - Antibacterial agents - Food additives - Food contaminants - Laboratory management - Pesticide residues - Microbiology - Food component - Training centre operation - Food poisoning bacteria - Food packaging - Water analysis <p>J-4 Local cost sharing</p>	<p>1. Inspectors & scientists trained in the project will not be transferred or recruited.</p> <p>2. Chemical reagents for testing are distributed stably.</p> <p>3. Ministry of Education cooperates with the project activities.</p> <p>4. Private companies provide information to consumer.</p> <p>5. Food Act is administrated well.</p> <p>6. Quality of raw materials will not be worsen.</p> <p>Pre-conditions</p> <p>1. Food manufacturers don't object.</p> <p>2. Consumers accept project activities.</p> <p>3. Enough counterparts are provided.</p>

E) Tentative Schedule of Implementation

ANNEX (E)

		TENTATIVE SCHEDULE OF IMPLEMENTATION PROJECT FOR STRENGTHENING OF FOOD SANITATION ACTIVITIES												Planned (as of March 28, 1994) Actually implemented (as of Aug. 13, 1998)												
		1994/95			1995/96			1996/97			1997/98					1998/99										
Japanese Fiscal Year (April to March)	1. Dispatch of Japanese Experts in Thailand (Long-term)	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
		Team Leader Food Sanitation Administration Food Analysis on Microbiology Coordinator Microbiological analysis of food Chemical analysis of food																								
2. Dispatch of Japanese Experts in Thailand (Short-term)	D M S	(1) Food additives	(1) Food additives	(1) Containers/packages	(1) Food contaminants	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives
		(2) Food contaminants	(2) Water/chemical analysis	(2) Composition	(2) Water/chemical analysis	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants	(2) Food contaminants
3. Training of Thai personnel in Japan	D M S	Microbiological analysis	GC/MS	Laboratory design	Laboratory design	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology
		Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard	Food control & standard
4. Provision of Machinery and equipment	D M S	(1) Antibacterial agents	(1) Food additives	(1) Pesticide residues	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	(1) Food additives	
		Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	Analysis of antibacterial residues in food	
5. Dispatch of Japanese Mission to Thailand	D M S	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	(1) QA/QC system	(1) Food inspection	
		Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food	Quality control of food
		18,233,543 Baht (67,666,109 Yen)	16,044,797 Baht (59,365,749 Yen)	20,737,387 Baht (80,415,007 Yen)	21,359,799 Baht (80,351,357 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	21,432,216 Baht (80,539,870 Yen)	

F) Result of the First Evaluation Workshop

Program of Evaluation Workshop 1
Project: Strengthening of Food Sanitation Activities

9:00 – 16:30, Friday, July 31, 1998 at Room A203 of NIH

1. Objectives

Through the workshop, the project staff and other persons concerned will:

- share clear understanding on what to evaluate;
- jointly self-evaluate the achievement of the project, primarily in terms of its efficiency and effectiveness;
- have expressed their suggestions/ recommendations to improve project performance.

2. Expected output documentation

- Format 1: worksheet for evaluating objectives, outputs and assumptions (PDM components)

3. Participants

13 persons from DMSc;
 6 persons from FDA;
 4 Japanese experts;
 1 person from JICA Thailand Office as observer.

Moderator: Takako Haraguchi, PCM consultant, Member of the Japanese evaluation mission.

4. Program

- Opening
- Introduction from moderator
- Review of objectives, outputs and assumptions
- Identification of performance of Objectively Verifiable Indicators (OVIs) (Group work)
- Assessment of achievement of the objectives with scoring:
 - (A) mostly achieved;
 - (B) partially achieved; or
 - (C) not achieved at all.
- Assessment of performance of important assumptions (Group work)
- Comments and discussions

1 Narrative summary of objectives	2 Objectively verifiable indicators	3 Means of verification	4 Responsibility for data collection	5 Actual performance of OVIs	6 Degree of achievement	7 Reasons for deviation from the plan	8 Recommendations																																																														
<p>Outputs</p> <p>Output 1 Food control activities are strengthened</p>	<p>1.1 Increase in no. of analytical method</p> <p>1.2 Increase in no. of inspection techniques upgraded</p> <p>1.3 Increase in no. of testing items</p> <p>1.4 Increase in no. of small-scale manufacturers inspected</p> <p>1.5 Increase in no. of well trained personnel in FDA & DMSc</p>	<p>1.1 DMSc Report</p> <p>1.2 FDA Report</p> <p>1.3 FDA Report</p> <p>1.4 FDA Report</p> <p>1.5 DMSc Report</p> <p>FDA Report</p>	<p>1.1 DMSc</p> <p>1.2 FDA</p> <p>1.3 FDA & DMSc</p> <p>1.4 FDA</p> <p>1.5 FDA & DMSc</p>	<p>1.1 No. of methods used in DMSc (accumulated)</p> <table border="1"> <tr><td>1994</td><td>1995</td><td>1996</td><td>1997</td><td>1998</td></tr> <tr><td>5</td><td>17</td><td>35</td><td>54</td><td>55</td></tr> </table> <p>1.2 No. of inspection techniques upgraded and used in FDA</p> <table border="1"> <tr><td>1995</td><td>1996</td><td>1997</td><td>1998</td></tr> <tr><td>2</td><td>5</td><td>10</td><td>16</td></tr> </table> <p>1.3.1 No. of testing items used in DMSc (accumulated)</p> <table border="1"> <tr><td>1994</td><td>1995</td><td>1996</td><td>1997</td><td>1998</td></tr> <tr><td>4</td><td>17</td><td>61</td><td>85</td><td>86</td></tr> </table> <p>1.3.2 No. of primary screening items used in FDA</p> <table border="1"> <tr><td>1995</td><td>1996</td><td>1997</td><td>1998</td></tr> <tr><td>730</td><td>950</td><td>1,446</td><td>1,930</td></tr> </table> <p>1.4 No. of small-scale manufacturers inspected</p> <table border="1"> <tr><td>1994</td><td>1995</td><td>1996</td><td>1997</td><td>1998</td></tr> <tr><td>180</td><td>450</td><td>630</td><td>220</td><td>480</td></tr> </table> <p>1.5.1 No. of personnel trained in FDA</p> <table border="1"> <tr><td>1994</td><td>1995</td><td>1996</td><td>1997</td><td>1998</td></tr> <tr><td>60</td><td>328</td><td>60</td><td>153</td><td>201</td></tr> </table> <p>1.5.2 No. of personnel trained in DMSc</p> <table border="1"> <tr><td>1995</td><td>1996</td><td>1997</td></tr> <tr><td>336</td><td>256</td><td>319</td></tr> </table>	1994	1995	1996	1997	1998	5	17	35	54	55	1995	1996	1997	1998	2	5	10	16	1994	1995	1996	1997	1998	4	17	61	85	86	1995	1996	1997	1998	730	950	1,446	1,930	1994	1995	1996	1997	1998	180	450	630	220	480	1994	1995	1996	1997	1998	60	328	60	153	201	1995	1996	1997	336	256	319	<p>Overall: B</p> <p>1.1 B</p> <p>1.2 A</p> <p>1.3 B</p> <p>1.4 A</p> <p>1.5 B</p>	<p>1.1 (DMSc) Some microbiological analytical methods need more training.</p> <p>Only 70 % of transferred methods are in current routine analysis. The rest are used as confirmation methods and some of them need more validation data.</p> <p>1.2 (FDA) Number is insufficient more primary screening techniques are needed.</p> <p>1.3 (DMSc) Experts were not dispatched according to the plan.</p>	<p>1.1 (DMSc) Need an expert to follow up PCR and lyophilized technique.</p> <p>Also need validation/ modification methods (FDA) Implement the following planned techniques:</p> <ul style="list-style-type: none"> - Antibiotic residue - In addition to the plan, the following items are recommended: - Pesticide residue - Pathogenic bacteria - Non food color <p>1.3 (DMSc) Need more testing items according to the plan.</p> <ul style="list-style-type: none"> - Virus in food and water - Material testing in plastics - Physical determination - Carcinogenic substances in drinking water - Vitamins and minerals subsidiary in dyes - Hormone residue in foods (expert in food contaminant) <p>In addition to the plan, the following items are recommended:</p> <ul style="list-style-type: none"> - Electrophoresis - Subsidiary in dyes - Propionic acid (chem) - Phosphates (chem) - Sugar (chem) - Campylobacter sp (micro) - C. Botulinum (micro) - Listeria (micro) <p>1.4 (FDA) Small scale inspection must cover more area.</p> <p>Also, extend QA/QC to canned food, dairy products and milk in plant</p>
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<p>Output 2 Hygiene management by food manufacturers becomes sufficient</p>	<p>2.1 Decrease in no. of violation cases identified in manufacturers</p> <p>2.2 Increase in no. of factories which</p>	<p>FDA Report</p> <p>2.1 DMSc Report</p>	<p>2.1 FDA & DMSc</p> <p>2.2 FDA & DMSc</p> <p>2.3 DMSc</p> <p>2.4 FDA</p> <p>2.5 FDA</p>	<p>2.1.1 Violation cases identified by FDA (case/year)</p> <table border="1"> <tr><td>1994</td><td>1995</td><td>1996</td></tr> <tr><td>868</td><td>1,181</td><td>437</td></tr> </table> <p>2.1.2 % of violation identified by DMSc</p> <table border="1"> <tr><td>1994</td><td>1995</td><td>1996</td><td>1997</td><td>1998</td></tr> <tr><td>F</td><td>13.5</td><td>19.4</td><td>18.6</td><td>22.9</td><td>28.2</td></tr> <tr><td>FE</td><td>0.97</td><td>0.74</td><td>0.7</td><td>0.35</td><td>0.68</td></tr> </table>	1994	1995	1996	868	1,181	437	1994	1995	1996	1997	1998	F	13.5	19.4	18.6	22.9	28.2	FE	0.97	0.74	0.7	0.35	0.68	<p>Overall: B</p> <p>2.1 B</p> <p>2.2 B</p> <p>2.3 B+</p> <p>2.4 B</p> <p>2.5 B</p>	<p>2.1 This indicator does not correctly measure Output 1 because:</p> <ul style="list-style-type: none"> - Area and type of food are not scoped. - Primary screening only (FDA) - FDA sends only 	<p>1. To measure the trend of violation, set up specific samples (target):</p> <ul style="list-style-type: none"> - Products: water, milk - Items: borax, color (food & non-food) in ready-to-eat food <p>2. Set up specific GMP (good manufacturing practice) GHP (good hygienic practice) regulation, e.g., for drinking water and milk.</p>																																							
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Narrative summary of objectives	Objectively verifiable indicators	Means of verification	Responsibility for data collection	Actual performance of OVs	Degree of achievement	Reasons for deviation from the plan	Recommendations																																											
	<p>introduced HACCP system</p> <p>2.3 Increase in no. of manufacturers registered under Pre-Certification System</p> <p>2.4 Increase in no. of small-scale manufacturers which accumulated knowledge and technique of QA/QC system</p> <p>2.5 Increase in no. of registration products</p>			<p>2.2 No. of factories</p> <table border="1"> <tr> <td>1994</td> <td>1995</td> <td>1996</td> <td>1997</td> <td>1998</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>20</td> <td>50</td> </tr> <tr> <td>DMS</td> <td>0</td> <td>0</td> <td>0</td> <td>40</td> </tr> </table> <p>*Certified factories.</p> <p>2.3 No. of registered factories / products</p> <table border="1"> <tr> <td>1995</td> <td>1996</td> <td>1997</td> <td>1998</td> </tr> <tr> <td>0/0</td> <td>1/6</td> <td>2/17</td> <td>*4/5</td> </tr> </table> <p>*In process.</p> <p>2.4 No. of manufacturers (milk and water) which introduced QA/QC</p> <table border="1"> <tr> <td>1994</td> <td>1995</td> <td>1996</td> <td>1997</td> <td>1998</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>20</td> <td>55</td> </tr> </table> <p>2.5 No. of products</p> <table border="1"> <tr> <td>1994</td> <td>1995</td> <td>*1996</td> <td>*1997</td> <td>*1998</td> </tr> <tr> <td>194</td> <td>177</td> <td>133</td> <td>188</td> <td>88</td> </tr> </table> <p>* milk and water only</p>	1994	1995	1996	1997	1998	0	0	0	20	50	DMS	0	0	0	40	1995	1996	1997	1998	0/0	1/6	2/17	*4/5	1994	1995	1996	1997	1998	0	0	0	20	55	1994	1995	*1996	*1997	*1998	194	177	133	188	88	B+	<p>positive cases to DMSc</p> <p>Sample types are of wide variety</p> <p>2.2 Introduction of HACCP has just started in Thailand (in 1997, it became mandate for exports).</p> <p>2.3 In 1998, four factories applied and are in process.</p> <p>2.4 QA/QC was just introduced to MOPH system.</p> <p>2.5 Due to market share and economic crisis.</p>	<p>3. HACCP should cover more factories and products (canned food, frozen food and milk).</p> <p>4. Concerning Pre-Certification system, expert consultation in information is needed.</p> <p>5. Extend transfer of knowledge on QA/QC to more factories.</p> <p>6. Extend registration to canned food and dairy products.</p> <p>7. Need good plan to get along with the Project.</p>
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Output 3 Consumers' awareness for food sanitation is improved	Increase in no. of consumer complaints	FDA Report	FDA	<p>Number of complaints</p> <table border="1"> <tr> <td>1995</td> <td>1996</td> <td>1997</td> </tr> <tr> <td>154</td> <td>184</td> <td>493</td> </tr> </table>	1995	1996	1997	154	184	493		<p>Educational media and campaign activities were not sufficient to cover the whole country.</p>	<p>1. Personnel training on effective consumer education campaign (including training in Japan)</p> <p>2. Continue activities</p> <p>3. Establish Provincial complaint network</p> <p>4. Extend public education through various channels</p> <p>5. Strengthen campaign in schools</p>																																					
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Note: The participants agreed that the important assumptions on output and purpose levels are satisfied at present.