

PD-ABS-729

THAILAND

Science and Technology For Development

(493-0340)

RESTRUCTURING ASSESSMENT

Prepared for USAID/Thailand

by

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Science and Technology for Development

Project components:

1. Research, Development and Engineering

Designated and Competitive - loan (15.8 mil)

Company Directed - loan - (2.25 mil)
- grant - (1.50mil)

Graduate Fellowships/Training - grant - (1.5 mil)

Technical Assistance Contract - National Academy of Science
grant- (3.3 mil) loan - (1.9 mil)

2. Industrial Development Services

Standards Testing and Quality Control - STQC - loan - (0.695 mil)

Diagnostic/Research Design Service (D/RDS i.e. consulting) -
loan - (0.950 mil)

Technology Information Access Center - loan (2.4 mil)
- grant (0.245 mil)

3. Program Planning and Policy Studies

Policy Studies - grant - (0.3 mil)

Support for Technical Assessment and Mastery Program
(STAMP) - grant - (0.6 mil)
- selection of equipment and training

4. Operations - grant - (2.8 mil)

I. Background and Summary

The assessment team was asked by USAID/Thailand to review the Science and Technology for Development Project and make recommendations in three general areas:

- Management streamlining to reduce project implementation burdens of STDB, DTEC and USAID.
- Pipeline reduction to better use obligated funds to achieve the project purpose, including consideration of a performance based disbursement procedure for policy, institutional or process reform.
- Strengthening and expanding STDB's support for private industry to more accurately reflect ANE and Mission priorities.

In analyzing ways to achieve these objectives, the team considered a range of options including performance based disbursements, organizational change, deobligation, movement of funds among priority and lesser priority project areas and appropriate private sector activities including consideration of enhanced U.S. participation. The use of these options and our recommendations are discussed in more detail later in this paper. Taken collectively they address the Mission's restructuring concerns and provide a framework to move the project forward. The recommendations are as follows:

- USAID and DTEC significantly reduce their detailed management control and oversight of the project.
- A new "Fixed Percentage Disbursement" (FPD) system should be instituted for the loan and grant programs. (USAID may use any title it deems appropriate for the system). This will permit USAID and DTEC to manage on a programmatic/output basis rather than an input or subproject by subproject basis. In addition, we suggest exploration of the delays attendant on the procurement of certain scientific equipment.
- Deobligation of a portion of uncommitted loan funds should be made to address pipeline concerns. Grant reobligation could be made this year to a high priority private sector project in Thailand. We would give the RTG a best efforts pledge to restore the cut over a period of years subject to successful progress in the project.
- Performance Based Disbursement may not be appropriate for this project with the exception of the modified and limited use of this concept in the FPD system noted above. However, use of PBD here would be counterproductive in achieving essential project purposes which require focus on the traditional input/output levels.

- Additional mechanisms for the participation of the private sector generally, and U.S. private sector specifically, have been proposed to supplement those opportunities available through the current project structure.

Finally, in reviewing the project and possible restructuring, we were asked to look at the justification for a two-year PACD extension. On this subject the team believes that with the adoption of the restructuring recommendations, a two year extension of the PACD is justified. The team supports the Mission's proposal in this regard.

II. Management Streamlining

Actions related to improving program management are directed at:

- Reducing project implementation burdens on USAID and DTEC;

and concurrently:

- transferring much greater program responsibility to STDB.

A. Management Controls: Current Structure and General Need for Streamlining

The current administrative arrangements for project management and the general directions for streamlining are as follows:

The Board of Directors meets semi-annually to provide broad policy guidance and approve annual work and financial plans. The Directors do not appear to represent a management or streamlining constraint.

The Executive Committee provides executive leadership and approves discrete subprojects, budgets/expenditures, etc. It usually meets monthly. The Executive Committee should be the point of management control for the project. AID and DTEC are members of the Executive Committee. The Executive Committee does not appear to be a management problem or an obstacle to implementation.

The STDB operating staff implements the projects including loan, grant and RTG counterpart funds. STDB's capabilities have increased greatly over the last three years, and DTEC has loosened some of its management controls. While STDB continues to experience some management-related problems, e.g., staff recruitment, it has the capability to effectively implement the project as designed.

USAID monitors overall implementation of the four major project components: RD&E; Industrial Development Support, Program Planning and Policy and Institutional Support. It provides a broad range of subproject and disbursement approvals for both loan and grant funds. AID should try to distance itself from day-to-day operating details of project implementation.

DTEC monitors overall project implementation on behalf of the RTG, provides a broad range of approvals for subprojects, procurement, personnel recruitment and compensation, and disbursement of grant and the grant related counterpart resources. This level of management control was probably necessary when STDB was new and unproven. However, STDB has now gained some experience, and in the interest of project execution DTEC should try to disengage from exercising this control function wherever feasible, giving STDB more responsibility for the project. Administrative control and assistance should be provided by DTEC only where necessary.

B. Specific Restructuring Suggestions

USAID is encouraged to develop innovative ways to use Fixed Amount Reimbursement type procedures for non-capital project.* STD offers a unique opportunity to apply the FAR concept to finance project outputs in a manner which will materially improve project management. This could be called the "Fixed Percent Disbursement" (FPD) procedure. The Mission should consider this procedure under STD for both loan funded components and for those grant funded components which go through DTEC.

By moving to this FPD system we believe USAID can significantly reduce its day-to-day operational workload, place greater reliance on an increasingly capable local institution (STDB), and better achieve the project's outputs and purposes. The FPD procedure, as discussed below, is essentially a management streamlining mechanism, although some pipeline reduction will also result as approval processing times are cut and STDB becomes more experienced in operating its program without excessive outside control.

1. USAID Loan Funded Components

Under the Fixed Percent Disbursement procedure AID would finance a fixed percent, e.g. 75%, of the cost of achieving quantifiable outputs. These would include RD&E and Industrial Development Support subprojects. Authority for implementing loan funded components have been delegated by the Ministry of Finance to STDB. Therefore, AID can disburse loan funds directly to STDB. Under the FPR procedure, disbursements would be on a quarterly basis based on an estimate of financial (cash) requirements by STDB for that quarter and on

* Handbook 3 Appendix 3J discusses use of Fixed Amount Reimbursement methods for local cost financing of capital and non-capital project. Options involving advances and fixed percent as opposed to fixed amount are also discussed. Additionally, Agency Policy Statement No. 14 on Financial and Administrative Management encourages the development of models for use of Fixed Amount Reimbursement concepts for non-construction projects.

existing STDB criteria and procedures for those programs. Advanced loan funds would be liquidated based on quarterly financial and progress reports. Additionally, the Mission would do sample verification of reports which should not represent a significant workload for the Mission. Subsequent disbursements would be made based on STDB's estimate of cash requirements for the succeeding quarter. Simply stated the parties would initiate a rolling advance/liquidation system targeted at outputs. Outputs would include completed subprojects or progress on subprojects, services delivered and administrative support performed. In order to move STDB away from dependence on AID financing and toward sustainability, AID's overall 75% USAID contribution could gradually be reduced with STDB assuming greater financial responsibility, e.g., a reduction of 10 or 15% a year. This might start with reduction and eventual elimination of our support to operating expenses under the Institutional Support component.

Specific key steps in the introduction of this disbursement system are:

- USAID withdrawal from approving individual subproject proposals and processing subproject specific disbursement requests.
- USAID reliance on STDB and its Executive Committee system to approve subprojects, vouchers, and disbursements against agreed subproject criteria and to maintain appropriate records in accordance with RTG requirements.
- USAID conversion of its existing project management system to one that reflects and monitors program/output level progress rather than progress and expenditures (disbursements) on individual subprojects.

It is the conclusion of the team that a project (loan) agreement amendment is not required to move to this system. However, this system should be agreed to by USAID and STDB in a "Fixed Percent Disbursement Agreement" or a "Joint Implementation Letter" and the detailed project agreement annex amended to the extent necessary in these ancillary documents.

The FPD agreement or PIL would establish a written agreement in areas such as description of eligible outputs, subproject approval criteria, format for requesting advances and reporting liquidation information, budget and maintenance of value provisions, progress reporting requirements, provision for STDB audit plus any other provisions USAID and STDB mutually agree to.

2. USAID and DTEC Grant and Counterpart Funding

The project grant portion, coordinated by DTEC, could be streamlined and financial performance improved in basically two ways: (1) eliminating or significantly reducing DTEC's control over subproject approval and the budget/expenditure system of STDB; (2) moving both USAID and DTEC to an output oriented Fixed Percent Disbursement system for grant and counterpart funds similar to that being proposed for loan funds. If DTEC will adopt the FPD procedure for its management of grant and counterpart funds, this would represent a major step toward overall project streamlining. DTEC should be encouraged to back away from day-to-day decision making. While it has improved the timeliness of its approvals for procurement, it continues to exercise control over approvals and a range of administrative decisions. USAID should encourage DTEC to move from being a decision making entity regarding STDB to one which essentially provides administrative support where required.

FPD becomes a bit more difficult if DTEC insists on maintaining micro management control. USAID can, however, reduce its own management burden by treating loan and grant funds in a similar manner, e.g. focusing on outputs and program level concerns and backing away from subproject approvals and management of subproject specific concerns and issues. This could be expanded to include project funded operating costs of STDB. The outputs to disburse against in this case would be institutional support or service delivered reflected as a percent of expenditures. The team supports the Mission's desire to phase out this component as soon as possible.

3. Procurement Streamlining

Both STDB and DTEC consider the time involved in verifying the availability or non-availability in the U.S. of certain scientific equipment as a significant constraint on the pipeline. Apparently NAS/Washington's verification is not considered sufficient to USAID in all cases. If this is a substantial delaying factor, remedies, such as acceptance of the NAS/Washington verification, should be explored with the RLA and the ANE and SER Bureaus in AID/W.

II. Performance Based Disbursement and Pipeline Issues

A. Performance Based Disbursement ("PBD")

One of the approaches suggested by both A.I.D./W and USAID, not only to deal with the pipeline but also achieve greater development impact through a policy or institutional reform basis rather than inputs level, was the conversion of this project, or parts of it, to PBD. We have examined and discussed the project in detail with USAID, particularly with respect to the uncommitted pipeline which, having no "strings" attached, seems the most likely target for PBD. It is our conclusion, however, that based on almost all requirements for the use of PBD, this approach here may come up significantly short of the requirements.

The agency has issued no formal guidelines for PBD although its use continues on a very selective basis in the A.I.D. world. In an audit of USAID/India Irrigation Projects (October 30, 1987) RIG/Singapore observed that "the A.I.D. Office of Financial Management agreed that A.I.D. needs to develop overall policies and guidelines on the use of performance disbursements. The Office of Inspector General will be following agency progress in developing the guidelines". Contact with the Controller's Office (Messrs. Usnik and McKeel), by the team before departure to USAID/Bangkok indicated that no formal guidelines had as yet been developed.

That same audit report noted that those cases in which PBD was used appeared to follow "informal guidelines" set forth in certain documents. Those documents consist of a draft 1983 cable on PBD and a July, 1985, paper entitled "A.I.D. Evaluation Occasional Paper No. 1, Implementing Policy and Institutional Change via Performance Disbursement, Examples from the Philippines, Bangladesh, and Niger."

1. PBD Requirements

Looking at these documents and the known examples of actual usage of PBD, the following key principles appear critical to a PBD approach:

- a. Since PBD uses cash, upfront or tranced, to "buy" policy or institutional reform, that reform should have significant development impact and be additive to that which can be obtained through traditional project inputs. Objectives, and any benchmarks to achievement of those objectives, should be as measurable as possible.
- b. The success and sustainability of the reform are premised on host country initiative and its desire to move in the targeted policy or institutional area. While PBD usage may have advantages for A.I.D. with regard to pipeline and manpower problems, these should be only by-products.

- c. A judgment has to be made on the right funding amount for leverage of the reform.
- d. Host country funding should be available for carrying out the non-policy traditional inputs level to the extent the project includes such elements (e.g. budget categories or traditional project inputs funding).
- e. The host country institution implementing these non-policy aspects should have demonstrated reliability so that A.I.D. oversight can emphasize the policy or institutional reform level while maintaining only a "bird's-eye view" of the non-policy input level.
- f. Certain PBD policy or institutional reform may require a switch in USDH or contractor staffing; e.g., commercial Finance Specialist, as opposed to or in addition to, project officer skills.

2. The Requirements Applied Here

When we measure or "screen" the STD project against these criteria, the following questions and/or conclusions seem appropriate:

- a. A number of the policy reforms we have discussed (basically those in the TDRI report and briefing) may well qualify as significant and additive. What is in serious question is their timeliness in terms of RTG priorities. Moreover, mid-stream project conversion (rather than a new policy project) may make design and negotiation of policy objectives and benchmarks a difficult task. While there may also be significant institutional or "process" reforms possible in this project, they are not clearly evident and, in any event, design and negotiation seem elusive in the timeframe of a mid-project restructuring.
- b. There is plainly a serious problem here with whose motivation and initiative would be driving the reform.
- c. There seems to be a general USAID staff view, supported by TDRI, that the STD funds available for PBD appear to be too insignificant to buy any real reform, particularly in the context of a mid-course project restructuring and in the absence of multi-donor funding support.
- d. A further serious question appears to be presented by the host country budgeting requirements. If the full amount of our uncommitted project dollars have to be matched by an equivalent amount of baht, the RTG budget

would present a problem. If these dollars are instead stretched out over a number of years to match baht availabilities, PBD loses that much impact.

- e. While STDB is a rather new institution, its reliability based on performance already evident seems adequate on the existing inputs level.

We should note here that monitoring of a restructured project, part of which would present traditional inputs as its primary focus and part of which has PBD as its principal focus, could create confusion and problems. We should also note that while STDB appears to have the requisite implementation reliability, any PBD arrangement where we leave the choice of component for traditional input funding to it, runs the risk of the input going into public sector or other activities of concern to A.I.D. Limiting that choice, however, throws further doubt on the PBD emphasis by reinserting A.I.D. into the inputs level.

- f. Staffing, as an issue, cannot be judged until a policy or institutional reform agenda could be formulated.

In sum, to the extent the above "screening" is accurate, we cannot be too sanguine about the propriety of PBD here. Moreover, given Congress' increased restrictions on the use of cash, in development sector as well as cash transfer assistance, even more care is called for in the use of project PBD. In addition, not using PBD here has certain definite advantages. Keeping our focus and attention on the existing inputs level permits us where feasible to negotiate more use of project component funds for the private commercial sector.

B. Other Pipeline Remedies

Even if USAID agrees that PBD is not appropriate here, other possibilities may well be available to accelerate draw-down of the pipeline.

1. Reprogramming Within the Project

The very breadth of STD project scope and activities provides the opportunity for reprogramming funds among components. Uncommitted funds and any other funds not firmly committed can be moved to the faster moving elements. Of course, other considerations such as appropriate private sector emphasis, would have to coincide with this movement and may prove stumbling blocks to some extent.

Another advantage of the broad scope stated in the project agreement here is that new private sector components discussed below which might move more expeditiously than those designed 5 years ago, may

be created for both disbursement acceleration as well as policy thrust purposes. None of these remedies, moreover, would require project agreement amendment as they seem susceptible of being considered within the broad project purposes; Amendment could accordingly be accomplished by detailed annex changes through PILs.

2. Deob-Reob

Another option available for pipeline amelioration is utilization of the deob-reob authority. In addition to helping with the pipeline, this could provide needed funding for a new private sector initiative. We have discussed with USAID staff the possibility of deobligation of an appropriate amount of uncommitted loan funds, possibly combined with provision of \$1 million grant from this year's OYB (as "earnest money"). These deob funds, depending on similar functional account accommodation, would be reobligated into other projects, such as JUST Business, a new blended capital project activity (if initiated), or possibly into an existing or a new private sector oriented training project. A final piece in this scenario could be an understanding with the RTG that the project funding, as reduced by the deobligation, would be made up by appropriate incremental grant funding in future years subject to availability of funds and the agreement of the parties to proceed based on reasonable progress in the project.

There may be other deob-reob possibilities which could be explored. Obviously deob-reob is not the easiest solution to negotiate, but it has the virtue from our point of view of being the tool provided by Congress for the pipeline dilemma presented here and would probably be preferable to uncertainties of PBD negotiation to the RTG.

3. Streamlining

Going back to the management streamlining discussed in the first part, the effects of such streamlining measures in terms of USAID, DTEC or other controls, can have a beneficial effect on the pipeline as well as easing our management burden. While any one of these may not represent a significant time savings in itself, the more such control areas are streamlined, the greater the potential effect on the pipeline. USAID should explore further modifications in this process than those discussed with the team. It may be possible that a "phased streamlining," modifying, giving up, or transferring management controls to other entities as experience might warrant could be initiated.

IV Science and Technology for Development - The Private Sector

A. Strengthening the Thai Private Sector

The STD project was originally designed to focus on the development of Thailand's indigenous Research, Development and Engineering (RDE) capability. This capability was to be built up in both the public and private sector, strengthening the relationship between the two and therefore stimulating the growth of industrial RDE. The approach was based on the assumption that the intellectual resources needed to develop industrial RDE was centered in the public academic S&T community. The use of the public sector S&T community by a nascent private sector RDE community is a common mechanism in technical development in developed countries.

In general, the project activities in both the Thai public and private sector can be viewed as supportive of the development of the private sector. A well-trained, skilled public sector, sensitive to the needs of the private sector, is a critical resource. However, project activities can also be looked at more specifically and divided into the two categories presented below. (A (*) indicates new activities, not in the original project design.)

Strengthening of Thai public sector

- development of the Science and Technology for Development Board (STDB)
- RDE grants to universities for research responsive to industrial needs
- increased supply of S&T human resources
- * support to engineering faculties to provide training stability

Strengthening of Thai private sector

- * grants to companies to support development of products requiring RDE capability
- loans to companies on specific research problems
- improved standards testing and quality control capabilities
- establishment of a responsive technical consulting industry
- establishment of a technical information resource
- * technical assessment and equipment mastery

B. Opportunities for U.S. Private Sector

As Thailand is moving to the status of ADC, an additional concern has surfaced. What U.S. opportunities are generated through the project? This concern reflects the emerging importance of mutual interests in an ADC relationship. Although designed prior to the mutual interest thrust, there are many opportunities for U.S. industry within the current project

structure. Most of the opportunities are informal in nature, not formally institutionalized as part of the project. (Formally described procedures for U.S. participation are indicated.) The opportunities are listed below under the appropriate project component.

1. Current Opportunities for U.S. Private Sector

a. RDE -

Company directed - grant - (participation formally described)
Joint ventures of Thai-U.S. firms are eligible if they meet the following criteria:

- the support will be used to develop the RDE capability of the Thai participants in the venture
- the firms are small or medium in size, having up to 200 employees in all their affiliated firms; in exceptional cases, support may be given to projects proposed by large corporations which could lead to great advancement of Thailand's technological and economic development and to increased diffusion of technology to smaller firms

A grant request from Aquastar, a U.S. joint venture, is currently under consideration.

Designated and Competitive RDE grant

- The Holstein-Freisen Cattle Association, representing U.S. vendor interest in selling frozen cattle embryos from high quality cattle, has sent representatives to Thailand to participate in Advisory Coordination Committee (ACC) Meetings here. The STDB has arranged to coordinate Thai participation so the U.S. vendors have had a chance to be heard and provide technical advice. Two STDB proposals of interest to the Holstein-Friesen Association are in process.
- The Mississippi Cooperative Extension Service Coordinator, David Veal, is interested in exploring the commercial potential of Thai prawns for importation by the Shrimp Cooperative Industry of the Gulf of Mexico. STDB has facilitated Dr. Veal's collaboration with Thai counterparts.

NAS TA Contract - The long term contract with NAS is used to access U.S. technical assistance for the entire project. Although NAS draws predominantly on the U.S. public sector, there has been an increasing use of U.S. private sector. Examples include the following:

- NAS representative on-site at STDB

-STDB supported a workshop on the commercialization of biotechnology in Fall of 1989. A U.S. participant in the workshop, identified and supported through NAS contract, proceeded to develop a joint venture. Thai Orchid Laboratory Co. Ltd. signed an agreement with Molus Co. USA (New York and Jarkarta) to develop cooperative business strategies and new venture developments for Thai Orchid Laboratory throughout Asia, the U.S. and Western Europe.

- NAS contract with STDB has supported the participation of U.S. private consulting organizations, including Battelle, Stanford Research Institute, and Intermatrix.

- To explore potential joint activities in biotechnology, a separate cooperative agreement will be signed shortly with the Office of International Trade of the State of Maryland .

b. Industrial Development Support

- Dr. Wirojna, Deputy Director of STDB has just returned from a trip to the U.S where he met with representatives of some large U.S. corporations (G.E., ATT, and Varian). His discussions focused on the potential role of STDB in helping these firms establish or expand their activities in Thailand. An important area is the shortage of technical human resources. STDB and the U.S. private sector may be able to work together in the identification and training of technical personnel necessary for future U.S. activities in Thailand.

STQC

- Akron Rubber Development Laboratory - through the NAS contract, a technical assistance contract has been signed
- FDA provision of consultant services
- STDB will purchase \$1.5 million of U.S. high technology equipment this year for use in the STQC program.

TIAC

- STDB has purchased access to two U.S. databases.
- U.S. computer equipment, both hardware and software, is being purchased for the center (approximately \$500,000)

c. Program Planning and Policy

STAMP - (described formally) Joint Thai-U.S. ventures are eligible if the the key mangers are Thai and the U.S. side holds no more than 30% equity in the venture

2. Increased Opportunities for U.S. Private Sector

The opportunities for U.S. involvement, which exist within the current project structure, may be supplemented in several ways. These activities vary - some requiring little project modification and others more substantive changes. In the cases where more substantive changes are required, funds may be obtained through the movement of unobligated money or through the redirection of funds earmarked for slow moving project components. Additional funds may also be available as A.I.D. support of recurring costs decreases.

a. RDE

- Establishment of a new RDE activity which specifically supports new or expanded U.S.-Thai joint ventures. The program would be similar to USAID/India's PACT project and linked to this Mission's proposed Just Business project. The technical review capability has been developing in STDB, and commercial review capabilities could be coordinated with U.S. commercial technology specialists (e.g. SRI). Such a mechanism would also provide another potential point of RDE support for technology needs identified through other Mission activities, e.g. ManRes.

- Increasing use of U.S. private sector by NAS (designation of a target percentage of technical assistance using the U.S. private sector)

- Training programs conducted by the U.S. public and private sector. (GE has offered to train people in U.S. patent procedures).

b. Industrial Support Services

- U.S. representation on the Advisory Board to the Technical Service Center for Industry

c. Program Planning and Policy

- Study and discussion on the removal of specific import protection in many local markets - (This will increase the competitiveness within the Thai R&D community and allow the U.S. greater access)

-Study on intellectual property rights

d. Operations

- Addition of a U.S. industrial liaison position at STDB - An individual knowledgeable in U.S. industry would be able to identify U.S. private sector options for technical assistance, to stimulate dealmaking and to provide liaison with other elements of the Mission's program (e.g. Just Business).
- Permanent membership on the Executive Committee of a U.S. private sector representative