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TWINS, GODFATHERS AND SANDWICHES

Evaluation report on the twinning arrangements between Dutch and Indonesian water supply companies

Volume 1 (of 2)
General Findings

Utrecht/Woerden, September 1991

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Introduction

Upon request of DGIS an evaluation of the seven ongoing twinning relations between Dutch and Indonesian water supply companies was carried out in the second quarter of 1991. The first twinning dates from May 1986, while the most recent one was established in September 1990.

Rather large differences between the seven Indonesian enterprises are found in: (i) the size of the organization, (ii) the percentage of the population served and (iii) the number of hours of pressure per day. On the other hand, all share a high level of unaccounted-for water, at least compared to what is common in the Netherlands.
The difference in size between the seven Dutch enterprises is much less pronounced. An important difference is found in the source of water: four enterprises use surface water as a source, the remaining three exclusively use ground water. In other respects there is a high degree of uniformity.

Characteristics of Twinning Arrangements

Substantial differences between the sectors in Indonesia and the Netherlands are found in the growth rate and the quality of the water supplied. In addition, significant dissimilarities between the twinning partners are found in the numbers of customers and, in several cases, in the type of water source. A comparison of averages of several key data is given in the following table.

Table 1 Key data of water enterprises. Averages of the 7 companies.

Description	Indonesian companies	Dutch companies
Number of connections	43,000	260,000
Production (million m³/year)	26	69
Population served per connection	7.2	2.9
Employees	400	320
Employees per 1000 connections	10	1.7
Unaccounted-for water	24%	16.0%

A substantial number of twinning arrangements is focused on the reduction of unaccounted-for water ("uaf"). However, uaf is not the main area of concern for all PDAMs. The selection of this subject is not based on a thorough analysis of the strengths and weaknesses of the Indonesian

counterparts. Instead, the topic appears to be selected through a comparison of the Dutch and the Indonesian partner, strongly influenced by the example of already ongoing twinning arrangements.

Unaccounted-for water in Indonesia was often designated a problem of physical leakage, as it is in the Netherlands. Later, it was recognized that the high uaf was also caused by other factors, including administrative deficiencies. The level of uaf reflects in fact the managerial grip on the operations of a water company. Poor management easily leads to growing differences between water produced and water billed.

Additional targets were mostly in the field of technical operation and maintenance, and sometimes in administrative matters. At present, most arrangements include elements concerning management. Exchange of specific managerial tools (e.g. checklists) is found throughout.
In several cases Public Relations (PR) has become a rather important activity. Attention to PR activities is given in PDAMs where a certain effort is required to obtain sufficient customers. PR has also been adopted by PDAM that acknowledge the relation between public image and payment discipline of its customers.

The principal mode of maintaining a twinning relation is through mutual short term visits. From the side of the Dutch water companies a substantial part of the staff sent on mission is from the operator's level. Indonesian staff on mission commonly is from managerial levels. Although a certain personal relationship develops between the individuals in these two groups, this process could not be utilized to its maximum, because the position of the counterparts in their respective organisations was too different.
In several cases, the Indonesian visitors characterize their position during a visit as "spectator", rather than "collaborator". The learning effect in such cases is lower than could be.

DGIS subsidy per twinning and per year is on average Dfl 150,000. The manpower input by the Dutch enterprises is to a certain extent free of charge. With an average *value* of the manpower input of roughly Dfl 150,000 per year per twinning, the actual *expenses* by the Dutch companies are more likely to be around Dfl 50,000 per year. Additionally, cash expenditures, materials and equipment mount to a minimum of Dfl 50,000 per year per twinning. The total costs for Dutch society would thus amount to some Dfl 250,000 per year per twinning relation.
At the Indonesian side the costs are considerably lower than on the Dutch side, but it is more difficult to make accurate estimates.

In general, twinning is highly appreciated by the Indonesian partners, although it is usually rather insignificant in quantitative terms for the total of the organisation. The possibility to "open the mind" is specifically mentioned as an asset, while having a twinning relation strongly enhances the

status of a PDAM. Finally, the twinning relation is used in some cases as a leverage to bring about changes in a PDAM.
The Dutch partners also appreciate twinning, mainly for the possibility to gain at the personality level and for the chance to do something for the less fortunate of this world. Status is an element here too.

Assessment

Twinning ought to be a *process of transfer* of know-how, through which this know-how is absorbed by the receiving party. In the twinning programme, however, the aim often is on a *transplant* of know-how: the actual putting to practice of acquired skills is at the forefront. This hampers a sustainable improvement of a PDAM.
Another constraint can be the direct support of top management of the PDAM; without it, new experiences and know-how can not be put into effect.

During intermittent visits by Dutch staff, new approaches are introduced and noticeable improvements are made. After departure of the visitor, the old way of doing things resumes; a "fall-back" occurs. This is often seen as a drawback of the approach with short visits. However, in the long run, this way of "working by contrast" may be more effective than to try to immediately achieve a continuous high performance.

Twinning shows the clearest effects in isolated settings. Demonstration projects, pilot areas and rehabilitations of "blocks" are situations in which the effects can be easily shown. In fact, given the relatively modest inputs, twinning is necessarily carried out at a "low-key" level and substantial effects on a PDAM as a whole should not be expected. Consequently, large, measurable outputs should not be expected either.

The cost-effectiveness of twinning can be judged favourable because the additional salary costs for the companies involved are not taken into consideration. When the value of manpower inputs would be fully quantified, however, twinning is a fairly expensive practice.

Twinning essentially should contribute at the level of operational management: efficiently running an enterprise. The type of expertise used is at the level of routine, day-to-day operational management. This happens to be fairly unique: only water supply companies possess long term aggregate skills in *running* a water enterprise.
The present approach leaves room for improvements. The skills provided are often biased towards technical rather than managerial fields. Little use is made of existing materials and structures. The Dutch partner is often over-optimistic about the limitations and resistance that changes will encounter. We found that the process of transfer of know-how was

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Future Outlook to Twinning

Twinning should aim to have its largest impact on issues of operational management. A basis for mutual trust is essential in that respect. At the moment, the Indonesian water supply sector has great confidence in twinning to contribute to the performance of a PDAM. Arranging a new twinning relation nowadays makes use of this momentum and can be a relatively fast process.

It is observed that sustainability is highest when the "involvement" of the Dutch partner in the PDAM is low. Also the total effort required by the Dutch water company is lower in such cases.
Simultaneously, the basis for trust is settled through a high level of involvement. Careful considerations are required to determine an optimum balancing between *trust* and *sustainability*.

A new methodology to complement twinning is emerging: Bapak Angkat or *Godfather*. A relationship is established between a big and strong PDAM (the Godfather) which has a (Dutch) twinning partner, and one or more small and weaker PDAMs (the Godchildren). This approach offers advantages for current and future twinning arrangements.

Twinning should also establish a direct coupling of the various managers and heads of departments. In such a *sandwich*, someone from PDAM management is linked to his direct counterpart at the Dutch water company. This will ensure optimum communication and exchange of know-how. Sandwiches can be created at any level to which twinning contributes. Most likely, it will cover top and middle management.

GON is considering to bring twinning under normal bilateral development cooperation between Indonesia and the Netherlands. In comparison to the present situation, this means a substantially higher administrative complexity. Twinning, however, is largely depending on voluntary inputs by the Dutch water supply companies. The risk that the interest of these companies is eliminated appears too large. Furthermore, twinning has a strong character of a process approach with an undetermined duration. This specific aspect requires long term commitments. Under the cash ceiling this continuity will be less easily expedited.

Dutch water supply companies involved in twinning at present have difficulties to sustain more than one relationship at the time; two would be a maximum. The main bottleneck is the availability of staff. The total number of water supply enterprises in The Netherlands is expected to decrease to about 20. The water supply sector in the Netherlands can thus sustain not more than 40 twinning relations worldwide.

DGIS experiences difficulties in efficiently handling the different new requests and managing the ongoing contracts. This is mostly caused by the

sometimes hindered by a lack of attention to didactic skills. In most cases no comprehensive plans of actions could be found.
Almost by definition, amateurism in certain respects is a characteristic of twinning. The reason is, that under the present conditions, mobilization and motivation of Dutch staff is only possible when twinning is not considered as ordinary business, but as helping a brother in less fortunate circumstances.

There is a remarkable separation between the partners where it comes to reporting. Not only are there no joint reports, also the materials are not always mutually accessible due to language used (Dutch and Indonesian).

In several cases, twinning has a relation to the activities of a consultant working for the PDAM. Sometimes twinning is a *follow-up* on the construction of new facilities. In other cases, a link to ongoing activities of consultants is sought; a *coalition* is formed. In both cases, an effective and complementary intervention can be achieved. The main bottlenecks in the relationship between twinning and consultancy are in competition and continuity. Dutch water companies occasionally view consultants as competitors. Consultants are more neutral towards twinning. The relation between a consultant and the PDAM is of a predetermined duration; twinning is undetermined and likely to be longer lasting.

The impact of twinning with respect to the main policy issues of GON and GOI is as follows:
- poverty alleviation: no direct effects;
- sustainable development: negligible effect;
- position of women: limited and indirect positive effects on the women in the households in the supply area. No effect on the position of women in the PDAMs;
- institution development: positive;
- raising public awareness in the Netherlands: limited positive effect;
- continued physical development: not main area of twinning;
- human resources development: positive;
- operations and maintenance: positive. This is the key field of attention of twinning.

Twinning in its present form has only limited value as a means to broaden public support in the Netherlands for development cooperation. Mainly those employees of water supply companies actively involved in twinning have achieved greater awareness about third world issues.

Overall achievements of twinning are satisfactory, although the impact in operations and management is less than hoped for. The present programme is a valuable instrument in the development of the Indonesian water supply sector, but improvements of this instrument are still possible.
Of course twinning is not a panacea for all problems in the sector; it should be used to complement other instruments.

1. INTRODUCTION

1.1 Background of Evaluation

In this report, the term used for a collaboration between a Dutch and an Indonesian water supply company is *twinning*. Twinning refers to a non-commercial process of transfer of skills and know-how. The costs of maintaining such a collaboration are partly covered by the companies themselves, partly by the Directorate General for International Cooperation of the Netherlands Ministry of Foreign Affairs (DGIS).
Twinning is considered as an instrument for development cooperation. It is rather new: the first relation between companies was established only in 1986. The instrument is expected to be valuable in terms of the type of knowledge that can be exchanged, in enlarged involvement of Dutch enterprises in development cooperation, and in institutional strengthening. For these reasons, DGIS decided to evaluate the effectiveness and efficiency of the twinning activities.

By letter of 12 April 1991, DGIS commissioned Matrix Consultants together with M-CONSULT to carry out this evaluation. The "core team" for the evaluation consisted of:
- Mr J.F.A.M. van Luijk, expert on institutional development, business economics and management, of Matrix Consultants, Utrecht;
- Mr A.R. Manuel, expert in sanitary engineering and organization, of M-CONSULT, Woerden.

In Indonesia the core team was joined by two Indonesian experts:
- Mrs Pratiwi A.M., environmental engineer, of PT Hasfarm Dian Konsultan, Jakarta;
- Mr J.F. Tumbuan, expert on enterprise development, of PT Waseco Tirta, Jakarta.

The specific issue of raising public awareness in the Netherlands was dealt with by:
- Mrs I. van Winden, Human geographer, of Matrix Consultants, Utrecht.

The Terms of Reference for the evaluation are shown in Appendix 1. This report presents the general findings in Volume 1, while the specific reports on each of the 7 twinning relations are presented in Volume 2.

The twinning relations which were ongoing at the time of the evaluation and subject of this report are:
1. Waterleiding Friesland with PDAM Tirta Musi Palembang, since May 1986;
2. Drinkwaterleiding Rotterdam with PDAM Kotamadya Bandung, since December 1986;
3. Delta Nutsbedrijven Zeeland with PDAM Kabupaten Bandung, since July 1987;
4. Provinciaal Waterleidingbedrijf Noord-Holland with PDAM Kotamadya Bogor, since July 1987;

ignorance of the Dutch water supply companies with policies and procedures at DGIS and lack of experience in concise reporting. The situation would even be aggravated in case twinning would be brought under the cash ceiling. Appointing a facilitating agency in the Netherlands could help to solve these problems. VEWIN would be a natural starting point for discussing the set-up of such an agency.

Main Recommendations

- In case efficiency of the twinning relationship should be the leading consideration in selecting a twinning partner, stronger and bigger PDAMs are to be favoured, even if they are outside the Dutch concentration regions.
- Selection of twinning partners should take into account the potential advantages of the Bapak Angkat approach. Bapak Angkat should be focused on partners that are geographically close.
- When selecting a twinning partner, an important criterion should be the matching of the source of water and the resulting type of treatment.
- Prior to determining a plan of action for the twinning programme, a thorough audit of the PDAM should take place.
- Sandwiching should be promoted.
- More attention should be given to the main target of a twinning relation: increasing the effectiveness in the areas of (operational) management and administration in order to realize institutional strengthening and greater effectiveness and efficiency of operations.
- Inputs that can be characterized as non-routine are best left to consultants or contractors.
- Whenever possible, the relation between costs and benefits should be established. Particularly in case of intensive leak reduction activities this should be given more attention.
- The results of some activities are more easily measured and quantified than others. It should be avoided to focus on measurable results alone.
- Comprehensive joint reporting in a standard format should take place once per year.
- More involvement of Public Works in the twinning activities should be arranged in order to profit from specific know-how, materials and experiences available with Public Works.
- DGIS should demand that Dutch water supply companies give more support to poverty alleviation. The same applies to raising public awareness in the Netherlands, for which they should seek more cooperation with relevant organisations and networks.
- Twinning should not be brought under the cash ceiling.
- DGIS may consider the present average of Dfl 150,000 per year as a reasonable maximum subsidy.
- A twinning relation should end when the effectiveness decreases substantially and can not be expected to increase again in the near future.

visits were limited to the seven Dutch companies. The itinerary of the evaluation is given in Appendix 2.
In addition, a number of representatives of organisations involved or related to the programme was interviewed, both in the Netherlands and in Indonesia. A list of persons met is shown in Appendix 3.

Many reports and notes produced by the twinning companies and by their associations were studied. Literature on the subject that could be traced proved very limited. Appendix 4 lists the most important documents used for the evaluation.

1.2 Indonesian Water Supply Sector

In Indonesia the water supply sector is characterized by substantial quantitative growth. At present, only around 50% of the urban population is served with house connections and public taps. The urban population, however, is growing strongly, partly because of the further extension of city boundaries. Production capacity is envisaged to double every decade in the coming future.
The price paid for the water is progressively depending on the quantity used. Social tariffs of around Rp 150 per m^3 are common, whereas a household is likely to be charged an average fee of some Rp 500 per m^3.

Most users boil the water prior to drinking because the quality at the tap cannot be assured.

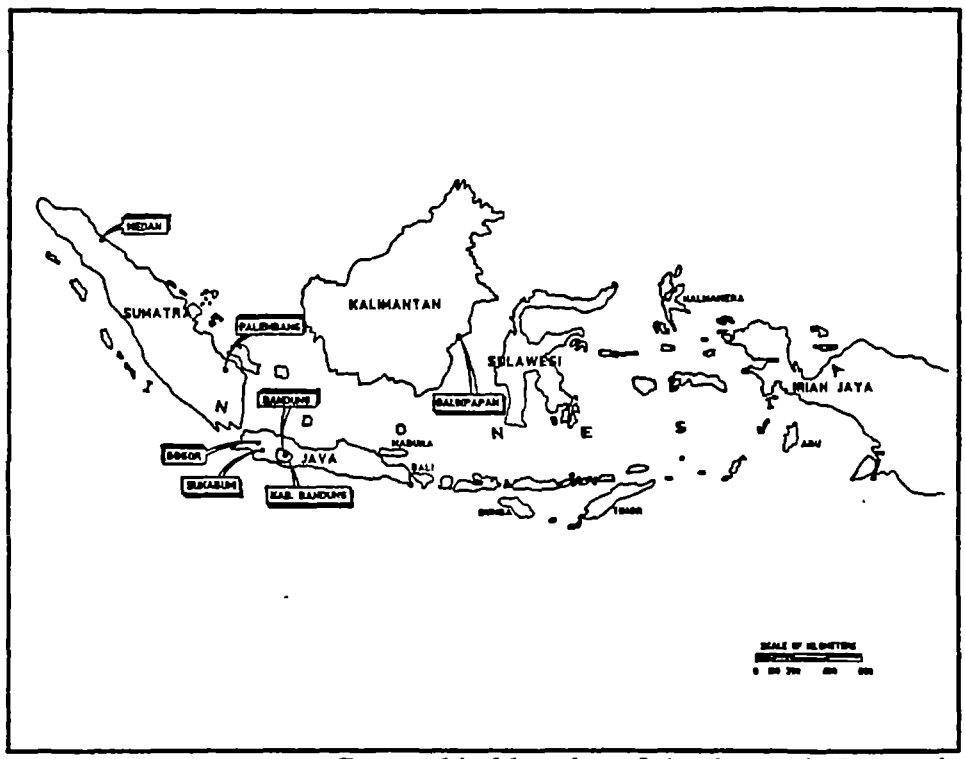
Surface water is used as a source in most of the large cities because groundwater is often not available in sufficient quantities and usually overexploited already. In the more densely populated areas, such as most of Java, even the total quantity of surface water is barely sufficient to satisfy all demands.

Governmental policy is to create autonomous water supply companies at the level of local government ("Tingkat-II"). For this purpose, a "BPAM" is set up as first stage in a process that will lead to an autonomous "PDAM".
BPAM can be considered as a building phase and is the responsibility of the Ministry of Public Works. Once the BPAM becomes a PDAM (in Java all have), the responsibility shifts to Tingkat-II level and is thus formally under the Ministry of Home Affairs. By 1994, there will be nearly 300 PDAMs in the whole of Indonesia.
Planning, design and construction of new or additional facilities is commonly carried out by consultants and contractors. This type of work remains under the guidance of Public Works.

The PDAMs have established their own association for exchanging information and fortifying sectoral interests: PERPAMSI. Chairperson of this

5. Waterleiding Maatschappij Gelderland with PDAM Tirtanadi Medan, since November 1987;
6. Waterleiding Noord-West Brabant with PDAM Kotamadya Balikpapan, since February 1989;
7. Watermaatschappij Zuid-Holland Oost with PDAM Sukabumi, since September 1990.

The map shows the locations of the PDAMs in Indonesia.



Geographical location of the 7 twins in Indonesia

Interviews with people directly involved in the twinning programme formed an important tool in the evaluation. Since each of the twinning arrangements was expected to be rather unique, it was decided to visit all 14 companies involved.
Activities started in the Netherlands, where the first 3 companies were visited by both members of the core team. The remaining visits were split between them. In Indonesia the first visit was paid by all four evaluators. The remaining 6 water enterprises were each evaluated by one member of the core team and one of the Indonesian consultants.

The duration of each of the visits was about one day in the Netherlands and about 2 days in Indonesia. During these visits persons at all levels of the organization were interviewed: from top management to working level. On average about 8 persons per company were involved. Mrs. Van Winden's

Remarkable from this are the large differences between the companies concerning the following aspects:
- the number of connections and thus the production capacity and the size of the organization;
- the percentage of the population served;
- the number of hours of pressure per day.

All share a high level of unaccounted-for water, at least compared to what is common in the Netherlands, and all use surface water as a source.

1.3 Netherlands Water Supply Sector

The main focus in the Netherlands is on water quality and water conservation. Additional capacity is not built, mainly because nearly 100% of the population is already served and demographic growth is very low.
Per capita consumption in the Netherlands is relatively low, around 120 litres per day. The average price is some Dfl 1.70 (Rp 1,700) per m^3.
Water can be drunk straight from the tap, anywhere in the country.

The most common source is ground water. Only some 16% is directly taken from surface water.
The main problem for the water industry is the deterioration of the groundwater quality by all sorts of pollutants, even in rural areas.

Water companies usually are private enterprises ("NV"), the shares of which are held by local governments in the areas they serve. At present, there are some 50 water companies, but it is expected that the ongoing programme of concentration will reduce this number to around 20 in the coming years.

Planning and design for construction work (replacements, new housing areas) is often undertaken by the water companies themselves. The help of organisations like KIWA is sometimes called. Consultants are rarely used, except for issues regarding groundwater flow, pollution and waste water, and for non-technical matters.

The water companies have their association VEWIN as platform for exchange of experience and defending sectoral interests.

The main characteristics of the water companies involved in twinning are presented in Table 3.

The difference in size between the enterprises is much less pronounced then in Indonesia. The most important difference is in the source of water: four enterprises use surface water as a source, the remaining three use exclusively groundwater. In other respects there is a high degree of uniformity.

organisation is the Director of one of the PDAMs. A direct link to Home Affairs is maintained.
The main characteristics of the PDAMs involved in twinning are depicted in Table 2.

Table 2 Main characteristics of the 7 PDAMs

Criterion	Palembang	Kodya Bandung	Bandung Kab.	Bogor	Medan	Balikpapan	Sukabumi
Connections (total)	55,000	73,000	18,000	21,000	108,000	20,000	9,000
Inhabitants (1000)	1,100	900	1,400	270	1,700	260	200
Population served	41%	48%	13%	58%	42%	40%	29%
Population served per connection	8.6	5.9	10	7.5	6.6	5.2	6.4
Production (million m^3/year)	50	37	6.5	12	65	6	3
Employees	430	730	200	230	850	230	96
Employees per 1000 connections	7.9	10	11	11	7.9	12	11
Production per employee (1000 m^3/year)	120	51	33	52	76	26	31
Unaccounted-for water	42%	35%	36%	35%	30%	20%	40%
Consumption per connection (m^3/month)	44	27	19	31	35	20	17
Use of surface water (% of total)	100	77	16	25	67	100	74
Hours of pressure per day	4-24	2-24	24	24	24	24[1]	20-24
Average tariff[2] (Rp per m^3)	220	434	316	410	370	685	410
Profit after depreciation, before tax (Rp million)	510	390	-190	1,900	1,000	-2	1,100[3]

1 A limited number of connections is in low-pressure (elevated) areas and may have as little as 2 hours of water per day.

2 Calculated as total revenues divided by total water billed, thus not necessarily equal to average domestic tariff.

3 Profit before depreciation

operations and management of the installations. The main outputs were in tools such as the HRDP-training manuals, ISSP, PMDU, and special courses.

Technical inputs under Dutch development cooperation support are phasing out. As a result, the total amount of the contributions in the urban and regional infrastructure development sectors, of which water supply is only one component, is now targeted at around Dfl 25 million per year, down from on average Dfl 35 million for water supply only in the peak years.

Table 3							Main characteristics of the 7 Dutch enterprises
Criterion	WLF	DWL	Delta	PWN	WMG	WNWB	WZHO
Connections	245,000	188,000	190,000	494,000	260,000	190,000	240,000
Inhabitants (x1000)	600	1,000	425	1,200	700	500	630
Population served	100%	100%	100%	100%	99.3%	100%	100%
Population served per connection	2.4	5.3	2.2	2.4	2.7	2.6	2.6
Production (million m^3/year)	46	140	50	82	54	58	51
Employees	360	590	300	750	350	260	320
Employees per 1000 connections	1.6	3.1	1.6	1.5	1.3	1.4	1.3
Production per employee (1000 m^3/year)	120	240	170	110	150	220	160
Unaccounted-for water	5%	6.5%	6.4%	4.5%	10%	5%	4.9%
Consumption per connection (m^3/month)	15	62	21	14	16	24	17
Use of surface water (% of total)	0	100	25	25[4]	0	5	0
Hours of pressure per day	24	24	24	24	24	24	24
Average tariff[5] (Rp per m^3)	1,900	1,650	1,870	2,030	1,320	1,300	1,270
Profit after depreciation, before tax (Rp million)	6,900	42,000	8,100	-4,150	4,600	2,000	190

1.4 Dutch Support to Indonesian Water Supply Sector

Dutch support to the Indonesian water supply sector on a substantial basis started in 1975. The initial contributions were of a technical nature. Water supply systems were constructed in towns and rural areas, developing and using various approaches (IKK, BNA). Amongst the results was the standardization and modular design of small treatment plants.
Rather soon, aspects of institutional strengthening were added. Human resources development became an important issue. Attention was given to

[4] Surface water is treated and then infiltrated into the dunes. From the dunes it is recovered as groundwater and treated accordingly before it is pumped into the distribution system.

[5] Calculated as total revenues divided by total water billed, thus not necessarily equal to average domestic tariff.

2.1.2 Goal, Objective and Means

In all cases the twinning relation is formalized in an agreement or arrangement, signed by the partners. The duration is mostly 3 years, but extendable; in one case the duration is 10 years. The *goal* mentioned is in all cases "the improvement of the water supply system of the PDAM". In some cases there is a subtle difference when the goal is formulated as "the improvement of the *management* of the water supply system of the PDAM".

Objectives are mostly not clearly defined and are often mixed up with activities or subjects to be dealt with. In two cases quantifiable objectives were mentioned concerning the level of uaf and the quality of water supplied.

It is remarkable that in none of the agreements any mention is made of objectives or goals related to the Dutch partner; twinning appears to be intended as a one way activity. Also missing is any mention of the contracts between DGIS and the Dutch companies, although they contain some conditions which are of interest to the Indonesian partner as well. These contracts are in all cases put in the Dutch language.

The agreements are very uniform again in the *means* to be applied. They usually are:
- exchange of employees;
- exchange of information, knowledge and experience;
- mutual consultations and discussions.

2.1.3 Differences Between Partners

It is clear that there are substantial differences between the water supply sectors in Indonesia and the Netherlands:
- *growth rate.* Many PDAMs have high growth rates, making it difficult to draw the attention to optimization of the existing process and facilities. Growth in the Netherlands in quantitative terms is around zero for a long time already, and most attention is focused on quality and organizational aspects.
- *water quality.* Supplying drinking water demands a rather different management approach (higher quality control) and technical performance (continuous pressure) as compared to providing piped water.

These differences not only apply to the sector as a whole, but also at the level of twinning. Of special importance is the fact that some Dutch water companies use only groundwater as their source while their partners use surface water. In such cases there is not only a lack of knowledge concerning the treatment of surface water with the Dutch partner, they also have much more concern about hygiene, because groundwater is already sterile and should be kept this way. With their twinning partner, sterile handling is less important because clear water from a surface water treatment plant is usually

2. CHARACTERISTICS OF CURRENT TWINNING ARRANGEMENTS

2.1 General Characteristics

2.1.1 History

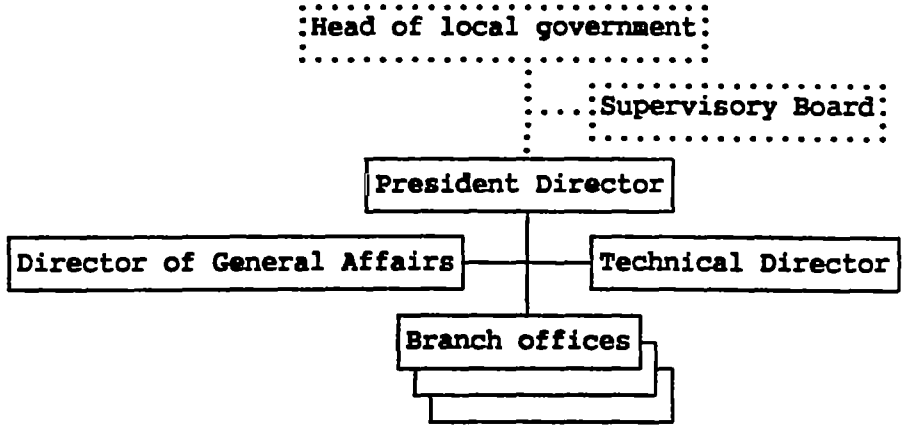
When the 1980s were proclaimed Water Decade, this led to numerous seminars and other meetings. One of the spin-offs of these has been that water supply companies in the Netherlands came in contact with similar organisations abroad.
Amongst the first enterprises to establish deeper linkages was Waterleiding Friesland and Tirta Musi Palembang. An approach to collaboration was developed and referred to as "twinning". Twinning was defined as a long lasting collaboration between two enterprises during which the Dutch partner would provide specific know-how regarding efficient operations of a water company. The Dutch government was willing to cover the costs of travel and per diem, under the condition that labour and other costs were borne by the water companies themselves.

Later, the idea of twinning was picked up by several other Dutch water supply companies. Also in Indonesia, the merits of having a Dutch twin were recognized. As a result, companies started actively looking for twinning partners. This happened both in the Netherlands and in Indonesia, but not in mutual coordination.
In the earlier stages of this process, and because of the lack of communication between the water sectors in Indonesia and the Netherlands, Dutch consultants in Indonesia were involved as sort of "broker". These consultants were in a good position to play such role, as they were executing projects for Indonesian water supply companies under Dutch finance. Furthermore, a number of employees of Dutch water enterprises had been involved in these projects through the consultants.
This led to a situation where twinning automatically linked up to the work of this consultant, either as follow-up, or complementary. The process that followed is described in more detail in section 3.2.2.

It is remarkable that most twinnings of Dutch water supply enterprises are with Indonesian partners. It is remarkable too, that there are only two cases of twinnings of PDAMs with other foreign companies.

Table 5							Ratio Dutch vs Indonesian twin
Description	Palembang-WLF	Bandung-DWL	Bandung-Delta	Bogor-PWN	Medan-WMG	Balikpapan-WNWB	Sukabumi-WZHO
Connections	4.5	2.6	11	24	2.4	9.5	27
Inhabitants (1000)	0.53	0.67	0.47	4.4	0.41	1.9	3.1
Percentage of population served	2.4	2.1	7.7	1.7	2.4	2.5	3.4
Total water production	0.92	3.8	7.7	7.0	0.83	9.6	17
Employees	0.84	0.81	1.5	3.2	0.41	1.1	3.3
Hours of pressure per day	1-6	1-12	1.0	1.0	1.0	1.0 (to 12)	1-1.2
Consumption per connection	0.34	2.3	1.1	0.45	0.46	1.2	1.0
Production per employee	1.0	4.7	5.2	2.1	2.0	8.5	5.2

In Indonesia the organization of the PDAMs is prescribed by the Ministers of Public Works and of Home Affairs. Although at lower levels a distinction is made according to the size of the company, the top structure is the same in all cases:



The laboratory and thereby the water quality matters are organized in the production department that is placed under the technical director.

The top structure in the Dutch water supply companies is not as uniform (see twinning relation reports in Volume 2), and also at lower levels

chlorinated. In three of the seven twinning relations, the Dutch partner does not use surface water while the Indonesian company does.
Obviously, it is difficult (even impossible) to find a perfect "match" between twins.

A "first glance" comparison of averages of key data of the seven Indonesian and the seven Dutch companies gives the following picture:

Table 4 Key data of water enterprises. Averages of the 7 companies.[6]

Description	Indonesian companies	Dutch companies	Ratio Dutch/ Indonesian
Connections	43,000	260,000	6.0
Production (million m^3/year)	26	69	2.7
Part of population served in supply area	39%	100%	2.6
Population served per connection	7.2	2.9	0.40
Consumption per connection (m^3 per month)	28	24	0.86
Employees	400	420	1.1
Employees per 1000 connections	10	1.7	0.17
Production per employee (1000 m^3/year)	56	170	3.0
Unaccounted-for water	34%	6.0%	0.18
Average tariff (Rp per m^3)	410	1,620	4.0

The large difference in number of connections is not reflected in total production capacity. This is caused by the fact that consumption per connection is much higher in Indonesia. In the Netherlands water is produced and distributed with considerably less manpower than in Indonesia, but nevertheless at much higher cost. The significant difference in uaf has been mentioned before.

A more detailed quantitative comparison between the partners in each of the twinning arrangements is given in Table 5 as ratios of Dutch versus Indonesian twin[7].

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[6] Mathematical, not weighted, averages of data in Tables 2 and 3.

[7] 1.0 means equal, 2.0 means that figure with Dutch company is double that with PDAM.

The "taking over" of the work by colleagues has a domino-effect over different levels in the organisation. In the case of long missions, a string of "take overs" results in vacancies at lower positions in the organisation, filled by temporarily hired staff.
We guess that around one third of the staff sent on mission is in fact replaced by additional staff. The manpower *expenses* for the Dutch companies are approx. Dfl 50,000 per year.

Finally there are cash expenditures and materials (water meters) and equipment given to the Indonesian twin. We estimate the average of this at a minimum of Dfl 50,000 per year per twinning, though there are substantial differences between the various relations. The total cost for the Dutch society for twinning would thus roughly amount to Dfl 250,000 per year per twinning relation.

The situation on the Indonesian side is less clear cut. The costs are considerably less than on the Dutch side, and a substantial part can be considered as expenditures the company has to make anyway in the course of its normal operations.

2.2 Problem Analysis

It might be expected that a twinning arrangement starts with an analysis of the strengths and weaknesses of the Indonesian partner and a decision on the fields in which twinning could be of assistance and in which it could not. In most cases, this did not happen. Instead, the main entry points for problem identification seem to have been a comparative analysis between the Dutch and the Indonesian partner, and the example provided by the already existing twinning relations.

In all twinning arrangements the reduction of uaf is a more or less important issue[8]. We have the impression that the uniformity is the result of – at least partly – good communication between the different Dutch partners, who were starting their involvement in twinning one after the other.
However, unaccounted-for water is unlikely to be the main area of concern for all PDAMs. In fact, activities to reduce the uaf are still now not considered as investments with a certain financial rentability. Solving the uaf-problem apparently does not mean solving *all* your problems, for the Indonesian partners.

In comparison with Dutch companies, however, uaf seems a very serious problem: it is rarely higher than 5% in the Netherlands, and seldom lower than 40% in Indonesia. This can be puzzling: is a PDAM with – say – uaf

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[8] Also PERPAMSI has confirmed that uaf-reduction is the main issue for the twinning programmes.

differences are found. Consequently it is not always possible to identify a single counterpart for each employee involved in twinning.

2.1.4 Motivation of Partners

The motivation of a Dutch company to be involved in twinning is rather diverse. First of all, it is clear that twinning by no means directly contributes to the primary task of a Dutch water company (delivering drinking water to its customers).
Indirect effects were noted, however. Staff that has been on mission to Indonesia is said to gain from such a trip at personality level. Positive side effects for the PR of a company also exist. A feeling of "we are doing something *good*" is emerging internally.
Nevertheless, the prime motivator for achieving a commitment for twinning is found at top management level. The managing director and the board will feel that twinning is an important public task. Support for such feeling is easily found in the sector: twinning is "*in*".

For the Indonesian partner, twinning has more immediate, direct results on the operations of its system.
However, here too some remarks can be made. One is that twinning is usually quite insignificant in quantitative terms for the total of the organisation. On the other hand, the possibility to "open the mind" is highly appreciated and effective. Furthermore, having a twinning relation strongly enhances the status of a PDAM. Finally, the twinning relation is used in some cases as a leverage to bring about changes in a PDAM.

The motivation of a Dutch partner is totally non-understood by the Indonesian twin. Most guess that there is a governmental obligation; some suspect a very clever trick of the Dutch government to maintain an involvement in the Indonesian water sector. The fact that the agreements do not mention any objectives for the Dutch partners does not help in this respect, of course.

2.1.5 Costs of Twinning Arrangements

An important characteristic of twinning is that only part of the total costs involved is subsidized under Netherlands Development Cooperation funds. This subsidy essentially covers costs of travel and per diem for both partners. From the contracts of the Dutch companies with DGIS (see Volume 2) it can be learned that DGIS subsidy per twinning and per year is between Dfl 107,000 and 193,000, with an average of some Dfl 150,000.
The manpower input by the Dutch enterprises is to a large extent free of charge. The main reason is that immediate and direct replacements of the staff sent on mission are rarely made; colleagues take over the work. Even with those staff that are stationed for longer periods this is common practice. We estimate the total *value* of the manpower input at roughly Dfl 150,000 per year per twinning on average.

From the side of the Netherlands partner, assistance is provided as inputs by experts. This usually means that an employee with relevant technical skills, often in the field of fitting, is sent to Indonesia. In the early years of a twinning relation, his[9] work aims to establish confidence at a personal level with his Indonesian counterparts. It often means that ad hoc solutions are presented and implemented in the field.
Once a basis for mutual trust has been established, the accent of the assistance shifts away from purely technical areas -- at least in those relationships where the PDAM is less sophisticated. Simultaneously, the type of approach becomes less ad hoc and more process-oriented: stimulating and suggesting different attitudes to operational management.

In several cases Public Relations (PR) and more specifically, Consumer Relations has become a rather important activity. Attention to PR activities is given in PDAMs where a certain effort is required to obtain sufficient customers. PR has also been adopted by PDAM that acknowledge the relation between public image and payment discipline of its customers.
This reflects the awareness of water supply companies that they are there to serve the community and not the other way around. A side effect is, that it enhances the status of both the company and of its personnel.

All parties acknowledge that the duration of a twinning relationship needs to be long. In fact, most report a period of 10 years, but this seems to be rather a common way to express a long duration, than that it reflects a specific intention to stop a relation after 10 years.
Having 10 years of work in mind, one would expect that -- for instance -- after 5 years, half of the planned results should have been achieved. Most twins were unable to relate the current results to the time elapsed in this manner. We feel that this reflects the (unconscious) intention of the partners to establish a relationship of undetermined duration.
Obviously, the main point of concern in such a case is that the effectiveness and efficiency of twinning should be measured in other ways than by comparing planned and actual output.
Furthermore, since it is difficult to measure the usefulness of twinning, it is also difficult to determine the moment at which a twinning relationship should be terminated. Although four twinnings are already functioning for four of more years, none of the twins anticipated to judge the appropriateness of maintaining the relationship. It has been remarked that you cannot stop to be family. Indeed it should be expected that in many cases some relation will be maintained even after the formal twinning agreement expires.

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[9] only in exceptional cases a woman is sent on mission.

of 20% having a problem because its uaf is four times higher than with the Dutch partner, or is it doing fine because its uaf is half that of the Indonesian average? And what to say about the fact that uaf in many western countries is often much higher than in the Netherlands?

The low uaf in the Netherlands is explained by the fact that Dutch companies were early adopters of PVC pipes which show, even over time, a low level of physical leakage. This water tightness is very much appreciated because it reduces the risk or infections in the distribution network which often carries non-chlorinated water. Furthermore, water meters are well maintained and administration is usually quite efficient.

The impression is given that in some cases, the Dutch partner considered twinning a "miracle drug" for all problems of a PDAM. This may have led to some overly optimistic target setting.

2.3 Execution of Activities

2.3.1 Focus and Approach

In general, the twinning arrangements have shown a tendency to start with points of immediate action. Consequently, the type of inputs was largely of a technical nature, as was the case with the initial focus in most cases on reduction of physical leakage in the distribution system. This focus usually shifted towards metering accuracy.
In some cases, the administrative handling became an element in the twinning arrangement. In all cases the transfer of technical skills and the introduction of new techniques and technologies is part of the programme. In one case, the main focus of twinning is in the production department and concerns raw water pumping and water treatment.

At present, most arrangements include elements concerning management. These often referred to a change in organisational structure: shifts of responsibility to lower levels in hierarchy, different functional sub-divisions. It was not always recognized that changes in the basic organizational structure are extremely difficult to implement, as most organizational matters are prescribed by the "Buku Pedoman", the Guidelines of the Ministry of Home Affairs.
Activities regarding motivation of staff and specific managerial tools (e.g. checklists) are found throughout.

Occasionally, the partners have the wish that twinning contributes to the capacity of the PDAM to provide *drinking* water. So far, this aim is a very long term one. It requires that the performance of the PDAM is improved in a number of fields simultaneously (pressure, treatment, pipe laying, leak reduction and leak repair) and thus highly complex.

2.3.4 Mutual Visits and Transfer of Skills

The principal mode of creating a twinning linkage is through mutual short term visits.
In retrospect, it is remarkable that from the side of the Dutch water companies a substantial part of the staff sent on mission[10] is from the operator's or worker's level. Indonesian staff on mission to the Netherlands commonly is from managerial levels.
A certain personal relationship (being "counterparts") develops between the individuals in these two groups. We feel that this process could not be utilized to its maximum, because the position of the counterparts in their respective organisations was too different.

Indonesian staff reports that the main effect of their visit to the Netherlands has been to "open the mind". This refers to two areas: at first, the visitor is highly impressed by the level of technical sophistication found at the Dutch partner. This sensation, however, is not very fruitful and quickly leads to a feeling of "distance" or irrelevance, as little application at the home situation seems to be possible.
The second area of immediate effect of the visit is in the recognition of a different approach to work, almost unanimously referred to as "motivation". It is perceived by the Indonesian visitor that the level of initiative and personal responsibility, and the attitude and corporate culture are entirely different at the Dutch company. Not all visitors recognize that these aspects (we will use the general term: motivation) are a result of managerial endeavours and think that the principal factor is found in the high salary level. A substantial number of visitors, however, are stimulated to examine the managerial techniques and tools that lead to this type of employee motivation.
In some cases, the Indonesian visitors characterize their position during a visit as "spectator", rather than "collaborator". The hosting Dutch water companies refer to such type of visits as "a burden", indicating that a special programme had been devised instead of inviting the visitors "to join in the work". We feel that the learning effect of spectator-type of visits is not very high.

Dutch staff on visit to the Indonesian partner says to gain personally from the visits resulting in an improved attitude to their own work. Also their superiors feel that the missions to Indonesia renders the staff more steadfastly and wiser employees.
This effect, however, is not achieved without frustration. Especially during the first years of twinning, expectations regarding the changes that are to be brought about within the time span of a mission are high -- and unrealistic. Most Dutch companies stopped providing their staff with very concrete assignments in order to overcome this. Nevertheless, in most situations, the

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[10] the word is used as equivalent of "field trip" or "visit".

2.3.2 Special Approaches to UAF Reduction

Special approaches were developed to provide for the desired results in uaf reduction:

- *block renovation*. The area is divided into geographical blocks. In each block, an overhaul of the system is carried out: repair of leaks, rearranging the reticulation system, replacement of bad pipes and water meters. After this overhaul, the system is brought under continuous pressure in order to increase customer satisfaction and discourage illegal connections. Meter reading and billing procedures are accurately applied. The methodology thus covers all aspects of unaccounted-for water.
- *house-to-house programme*. Special teams check the existing system as well as the system "after the water meter". The main difference with the block-renovation approach is that small leaks in the indoor plumbing system are reduced as well. This contributes to lower uaf, since water meters do not register below a certain flow level.
- *leak reduction*. In a pilot rural town, an approach is developed to cover most of the elements of uaf. A water meter is mounted between the mains and a group of house connections in order to determine whether total water consumption equals total supply. In case of deficiencies, a pressure test is used to locate physical leaks. If still uaf is too high, a search for illegal connections is started. As a possible last step, the individual water meters are replaced.
- *pilot survey*. One area was thoroughly analyzed in order to determine the relative importance of physical leaks, illegal connections, measurement errors, and administrative losses. The result was used for determining a larger strategy against uaf.

The feasibility of the interventions could not be measured, partly because the relative importance of the elements of uaf was not known, partly because the effect of the interventions depends on changes in overall management and operations at the PDAMs.

2.3.3 Inputs by Partners

A quantification of the inputs in terms of money has been presented in section 2.1.5.

It can be argued that the actual input from the Dutch partner is fairly limited. It should be recognized, however, that this is the case because productivity has been increased. This increase could only be achieved by motivating the staff for the twinning relationship – an important feat of raising "public awareness" in development cooperation.

The type of inputs provided by the Dutch water company (both financially and through increased labour productivity) limit the physical number of twinning relationships that a single company can handle. Most enterprises consider one, perhaps two, to be a maximum.

under twinning are thought to be in conflict with cost-reduction policies in the PDAMs.

The second constraint can be the direct support of top management. It should be noted that all PDAMs *express* their positive attitude towards twinning. A first bottleneck is at the level of execution of the activities themselves, where authority and delegation easily conflict with measures to increase productivity and quality of labour. It could be noted that the implementation of certain skills and methods was hindered by this circumstance. Lack of funds and other means is a second bottleneck.

In the third place the (regular) replacements of PDAM top management and frequent changes in position of managers at lower levels form a bottleneck in the twinning. The implementation of much of the knowledge transferred depends on the consent of top management and the Dutch partners feel that much of what was learnt by managers at lower levels is lost once they change positions in the PDAM.
Staff of the PDAMs think the latter issue is not as serious as their partners suggest, since the new capabilities are often useful in the new position too. The situation is further complicated for the Dutch partner by the fact that the organizational structure of the PDAM is often not easily understood by the Dutch visitors and the tasks of the PDAM employees are not clearly defined.

The fourth and final constraint often mentioned is insufficient language proficiency. This applies both to the Indonesian and Dutch persons involved in twinning. Particularly for the more important but less tangible issues concerning organization and management, communication by language is of prime importance.

effects of a mission are short lived. The question whether this is an advantage (as it shows the impact of a different approach "by contrast") or a sign of inappropriate Dutch inputs is not easily answered.

We found that the process of transfer of know-how was hindered by a lack of attention to didactical skills.
Dutch staff is sent to Indonesia to set up on the job training or even formal class room sessions, merely qualifying for this on the basis of being expert on the topic.
Indonesian staff on mission in the Netherlands acquires all sorts of skills, many of which they will not use themselves (e.g. fitting techniques). This presupposes that they will teach their subordinates, but this didactical process is not being assisted nor are there any means to ensure that it is actually taking place.

Visits in both ways also have important internal effects. They provide status (and envy) with colleagues and are apparently used as an incentive for good performance. As a result, the active support by the staff -- essential for the success of the relationship -- is largely assured by the mere existence of visits to the twin-brother.

Visits are usually relatively well prepared in terms of language. Indonesian visitors try to improve their English, Dutch study Bahasa Indonesia.
All parties claim that this is of utmost importance, because the use of interpreters is quite detriment to effective communication.
Regardless of all good intentions, the required effort to indeed master a foreign language is very large in relation to the duration of the average mission. Only few Dutch people seem to really speak sufficient Indonesian, and only those Indonesians with prior knowledge of English achieve the desired level of fluency.
Oddly, the partners do not learn the same language. In terms of aiming for a common language, both Dutch and Indonesians perhaps should study English (the assumption that all Dutch have already sufficient proficiency is not valid). This would probably be a wise strategy when twinning would be confined to managerial levels. However, Dutch visitors are often supposed to communicate with operators of the PDAM, a level at which English is rarely spoken.

2.3.5 Common Constraints

Several types of constraints are often found.

The first is a vicious circle at a financial level. Improvements to the existing production and distribution systems (such as uaf reduction programmes) are treated as operating expenses, having a negative effect on the profit of the company. Only rarely, PDAMs consider such improvements as *investments* with a certain pay-back period. As a result, many of the activities carried out

by the permanent representative. In other words: it must be doubted that the improvements have been rooted at management levels[11].
In case of permanent representation, a key issue will obviously lie in the process to hand over the tasks and responsibilities to Indonesian counterparts at the end of his stay. This has so far not been put on the agenda.

In those cases where the "work by contrast" approach is used, a need is felt to signal to the PDAM and to the Dutch partner if and when a fall-back is taking place. Such function obviously needs to be performed by somebody in Indonesia. In at least one case, it was successfully provided by an external consultant already working with the PDAM on the supervision of a physical extension project.
It is conceivable that a similar function could be performed by bodies such as PMDU.

3.1.2 Methodology and Effects

Twinning reaches the clearest short term effects in isolated settings. Demonstration projects, pilot areas, rehabilitation of a "block", all these are situations in which the effects of the approach can be easily shown. In fact, given the relatively modest inputs, twinning is necessarily carried out at such a "low-key" level, that substantial effects on a PDAM as a whole should not be expected. Consequently, it is not recommendable to foresee that twinning will have large, measurable outputs.
The advantage of an isolated setting is not only that results can be easily seen, but also that it leaves more room to the PDAM to experiment.
A disadvantage is the risk that twinning becomes a rather minor activity, hidden away in a corner. Since twinning as a methodology is a relatively uncommitted form of collaboration, such situations can easily occur.

In general, the quality of the activities taking place under twinning is good. This is achieved through accomplishments in the following fields:
- the transfer of skills is focused on practice and usually takes place under on-the-job circumstances;
- inputs from the Dutch partner are largely provided upon request by the PDAM, thus facilitating implementation and sustainability;
- visits of Dutch staff to PDAM are organized in a rather open and flexible setting, and are reasonably well prepared at the level of language and team composition (in most cases first-timers together with more experienced colleagues).

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[11] For example: the efficiency of fitting work is related to the ease with which the fitters have access to tools and materials. Simpler procedures to obtain materials and tools can be implemented under pressure of a permanent representative, as this person will be considered reliable enough to adequately control this. Upon his eventual departure, however, no other person at PDAM will have a position to take over this function, as it is not incorporated into the company's organisational structure. The former time consuming procedures will then be resumed.

3. ASSESSMENT

3.1 Analysis

3.1.1 Transfer Process

Twinning ought to be a *process of transfer* of know-how, through which this know-how is absorbed by the receiving party and adapted and integrated for use under the prevailing conditions. In the reality of the twinning programme, however, the aim often is on a *transplant* of know-how. The necessary process is given little attention, while the actual putting to practice of acquired skills is at the forefront.
Explaining why this happens is easy. The establishment of a relationship of trust and confidence needs some concrete results, some proof of trustworthiness. Dutch staff on short missions is rewarded by seeing their "advice" implemented straight away.
However, too many negative consequences are recorded: visitors from Holland often become *experts*, their Indonesian counterparts *trainees*. This hampers a sustainable improvement of a PDAM, initiated and supported by Indonesian staff.

A *process of transfer* is (by definition) dynamic and requires both technical and managerial incorporation at the receiving party of a certain skill or procedure. Not only is it important that both partners become aware how a new procedure or skill can be implemented and contribute to greater company performance (this is already essentially different from the "expert" approach). It is equally important to know under which conditions this implementation will *not* be sustained. Also from a viewpoint of dynamism, it may therefore be more effective to be "working by contrast" than to try to immediately achieve a continuous high performance.
Most twins report that this working by contrast actually happens. During intermittent visits by Dutch staff, new approaches are introduced or large improvements are made. After this person's departure, the old way of doing things resumes; a "fall-back" occurs.
On the other hand, it should be noted that it is hard to manage a *process* through intermittent visits of different people.

In three cases it was decided that this called for a permanent Dutch representative. The model chosen here is that of "extended exposure": the longer a good example is given, the more likely that it is absorbed.
In practice, however, the permanent representative becomes a key factor in a PDAM. In such case the introduction of new procedures does not require general consent of PDAM-management any longer, as they can be "pushed"

the distribution pipes is generally low. This allows for easily made illegal connections, but also prevents that leaks become visible above the ground. Growing numbers of leaks and illegal connections increase the rate of consumption and thus cause a further lowering of the pressure.
The effect is somewhat limited from another side, however. Low pressure often means no pressure at all in more elevated areas. Where billing is done against a minimum quantity consumed, consumers may never have actually received the water on their bill. Furthermore, water meters register passing *air* as well.

In fact, the level of uaf reflects the managerial grip on the operations of a water company. Poor management easily leads to growing differences between water produced and water billed. The motivation may not be adequate to take immediate action on occurring physical leaks. Overhauling and replacing water meters perhaps receives little appreciation. New connections and extensions can be of limited life span if no incentives are given to reward good quality of workmanship.
Good operational management also has effects on other parts of the system. It may lead to more efficient intake and transportation of raw water, maintenance of wells, water treatment, consumer relations, system extensions, and so forth.
At the level of financial management there is also a vicious circle. Maintenance of water meters and distribution systems require investments that may be quickly recovered. High uaf leads to lack of funds and prevents that necessary action can be taken.

Most twinning partners acknowledge the link between improved operational management and unaccounted-for water. A current point for discussion is whether it is feasible to first improve uaf and then discuss management. The charm of this strategy is that contributing to lowering uaf establishes mutual confidence between the partners, and that the vicious circles may be temporarily broken.
The obvious risk is that the efforts remain in vain when not followed by a different management approach. This is less the case where programmes to reduce uaf were executed in limited pilot areas.

3.1.4 Functions of Twinning

The Terms of Reference (Appendix 1) list eight possible functions that twinning could have for the receiving party. From the information gathered, we estimate that these functions were used as follows.

- *Organization/institution development.* Results in the improvement of the organizational structures and in institutional development are less noticeable than might have been expected in a programme which seems specifically suited for this function. Of course, the regulations in the Buku Pedoman limit the possibilities as far as the organizational structure is concerned. Most results are on the operational level which is more a part of the next function.

Nevertheless, there is room for improvement. The skills provided are often biased towards technical rather than managerial fields. Little use is made of existing materials and structures. The Dutch partner is over-optimistic about the limitations and resistance that changes will encounter. These issues are discussed more extensively in other sections of this report.

There is a remarkable separation between the partners in a twinning arrangement where it comes down to reporting about the results of the work carried out. Not only are there no joint reports, also the materials are not always mutually accessible due to language used (Dutch and Indonesian). Furthermore, the analysis of the situation at a PDAM in a number of occasions was clearly one-sided: taken from the Dutch angle.
Parties claim to reach agreement about the activities to be carried out. Such plans are often put on paper as minutes of meetings, and signed by the relevant persons.

However, in most cases no comprehensive plans of actions could be found. We feel that this reflects a lack of analysis of what the twinning relation is supposed to contribute. Obviously, since twinning should be characterized as a *process of transfer*, such tools as a Plan of Operations may be less suitable. The argument may have been used a bit too strictly; the partners have -- in their pursuit of a flexible approach -- overlooked to clearly and mutually establish their ultimate objectives with the arrangement.

3.1.3 Unaccounted-for Water

Reduction of uaf is an important element in all seven twinning arrangements. Using the same comparative approach as described in section 2.2, unaccounted-for water was often designated a problem of physical leakage -- which makes the main part of the Dutch 5%. As a result, the initial work under twinning has shown a bias towards fighting physical leakages: connections, fitting techniques, replacement of old pipes.

Later, it was recognized that part of the high uaf was caused by the lack or malfunctioning of water meters at the service connections. Most PDAMs with a twinning partner in the Netherlands were assisted in setting up a more adequate water meter repair shop.

Attention was also given to the illegal connections made by consumers themselves. The importance of this type of uaf is apparently difficult to assess. There is reason to believe that it is relatively unimportant.

Finally, the so called "administrative losses" were recognized as part of uaf. Most Dutch partners show reluctance in dealing with this aspect, as it can touch directly to local politics or managerial and organizational attitudes.

There is a vicious circle at the technical level: due to the combination of insufficient production capacity and high rates of consumption, pressure in

twinning is a fairly expensive practice. The truth is likely to lay in between those extremes. However, these considerations do injustice to the uniqueness of the skills now made available to the twinning partner.

3.2 Twinning as Concept for Project Execution

Twinning essentially should contribute at the level of operational management: efficiently running an enterprise.
The current twinning arrangements show that this involves a process of organisational change in which trust is the main factor. The trust is achieved by a range of factors:

- the Dutch partner has no vested interest in the twinning, nor is there a clear relation to interests of the Netherlands Government, consultants, or contractors;
- the Dutch partner is running a water company herself, and thus assures her credibility;
- by providing technical skills, the Dutch partner proves her expertise and twinning is established at the micro-level of personal relationships as well.

In terms of a project life cycle, twinning is clearly relevant to the operational phase. The main fields to which contributions should occur are thus operations and maintenance, and on-the-job training.

3.2.1 Impact and Professionalism

As stated before, in its current form twinning can only make a limited impact. This is essentially caused by the limitations in the capacity of the Dutch partner to "supply" expertise. The type of expertise used is at the level of routine, day-to-day operational management.
This happens to be fairly unique at the same time: contractors may have skills regarding construction and building, consultants can adequately provide expertise on planning, design and training, but water supply companies possess long term aggregate skills in *running* a water enterprise.
Given both uniqueness and limitation, twinning should not aim to incorporate such functions as design or construction.

At the same time, the uniqueness of the expertise to be tapped through twinning should not be exaggerated. What a Dutch water company has to offer is the *combination* of applied technique and management. What twinning has to offer, is an amalgamation of five factors: specific expertise, a habit to analyze problems from the viewpoint of a water company, an opportunity to use a process approach with undetermined duration, a relationship based on trust and something that can summarized with "motivation".

- *Strengthening management.* Results are rather positive, particularly in the sense of personal qualities for those who had the chance to visit the Netherlands.
- *Supporting measures for institutional development.* Various support systems have been introduced or obtained under the twinning programme.
- *Staff training.* Much effort is spent on training, particularly in technical skills.
- *Consultancy.* Advisory activities of an informal nature are often found, most often in technical matters. Formal assignments, particularly those of a planning and designing nature, are not observed.
- *Business culture impact.* Although hard to measure, twinning certainly has an impact on business culture, again mostly as a result of the visits of PDAM staff to the Netherlands.
- *Supporting services.* Numerous services of various sorts are rendered under twinning. The flexibility of the present twinning arrangements makes this a rather unique function of twinning.
- *Executing and contracting work.* Although meant as providing examples, execution of work and in-line positions by Dutch staff are no exceptions. Formal contracting situations were not found.

3.1.5 Efficiency

In this report, no attempt is made to quantify the cost-effectiveness of twinning. Not only are variations between the different twinning arrangements too large, the principal results of the efforts are of a rather qualitative nature: attitude, motivation. Results are noticeable, but hardly quantifiable. Only in one case, a short payback period of the investment in a rehabilitated water supply system and improved control and management was specifically mentioned[12].
Some concern should also be expressed. The effect of twinning on the reduction of unaccounted-for water, one of the prime quantitative aims, can be rather marginal. In one of the most extensive programmes, 80% of the house connections was checked and more than 7 kilometres of pipes were replaced, but this resulted in a reduction of uaf of not more than 2.5%[13]. It would seem that the elements of the approach used in twinning should be more continuously evaluated against their (economic) benefits.

It can be stated that the cost-effectiveness of twinning is likely to be acceptable as long as there are no additional salary costs for the companies involved. When the value of manpower inputs would be fully quantified,

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[12] In Majalaya, Kabupaten Bandung, the extra expenses were recovered from increased revenues in about half a year.

[13] It is claimed that uaf would have much increased without twinning. This may be true, but the main conclusion remains valid: no substantial quantitative result can be proven.

Works, Directorate General of Human Settlements ("Cipta Karya"). Day-to-day operations and management are the responsibility of the PDAMs themselves. They are government enterprises at the level of local governments (usually at the level of Regency or Municipality: Tingkat-II, sometimes provincially or Tingkat-I) and as such brought under the Ministry of Home Affairs ("Dalam Negeri"). Twinning thus is under Dalam Negeri.
For consultants working under Cipta Karya, activities regarding operations and management are mostly related to the construction of new facilities and by nature limited in time. A link-up to a twinning arrangement strengthens the link between construction and the running of the enterprise.

A *coalition* between consultant and Dutch water company can be beneficial for all parties.
The consultant can contribute to the communication between the twins, to the professionalisation of the Dutch partner, may assure continuity of twinning activities at a limited (and thus desirable) basis, and could incorporate improvements suggested under twinning into its own programme. The Dutch partner can act as a mediator between PDAM and consultant, and can provide independent judgement, thus leading to a larger impact of the work of the consultant.

The main bottlenecks in the relationship between twinning and consultancy are in competition and continuity. Dutch water companies occasionally view consultants as competitors. Consultants are more neutral towards twinning in this respect and consider some overlap of activities as an advantage since it results in "speaking the same language".
Consultancy inputs are by definition of limited duration, whereas twinning is not. The end of a consultant's contract in the situation of a *coalition* may have drawbacks on the twinning relationship.

Consultants have their strong points in planning and designing physical works, and in a growing measure in institutional strengthening including the set up of training activities. They usually employ professional development workers. Consultants must perform within time and budget limits, and have a professional liability for services rendered.

The Dutch twinning partners have strong points in the intimate know-how of management and operation of water enterprises. This includes vocational skills such as fitting, repair work, etc. The overlap with consultants is mostly to be found in institutional aspects, including general aspects of training.

It is often claimed that also amateurism is a relevant characteristic of twinning. Most common elements in the "amateurism" are:
- neglect of existing external structures for support;
- ignorance about available and proven materials for transfer of knowledge;
- lack of knowledge of laws and regulations applying to PDAMs;
- disregard of position and function of consultants working for the PDAM;
- paternalistic attitude, resulting in a perception of the PDAM as a "little baby" with no relevant experience, and the Dutch as being experts;
- biased problem definition.

It should be recognized that the above elements exist almost by definition. The reason being that mobilization and motivation of (Dutch) staff is only possible when twinning is not considered as ordinary business, but as helping a brother in less fortunate circumstances.
True as the latter may be, it is no excuse for unprofessional performance. It should be possible to safeguard the special position of twinning within the Dutch water company in a process of professionalisation of its execution. In fact, this is what happens in most twinning relationships anyway.
A twinning relationship should not be judged by the level of amateurism, but by the measure and speed with which it has been overcome.
In the early twinning arrangements, reaching a certain level of professionalism seems to have taken several years. More recent arrangements are able reach this point much quicker, apparently due to the exchange of experiences between the Dutch water companies and the guidance and attitude at the Indonesian side.
However, a continued effort is to be made to increase professionalism, with contributions by platforms such as VEWIN and PERPAMSI, but also the Twinning Group Indonesia and its Dutch equivalent.

3.2.2 Twinning and Consultants

In many cases, twinning bears some relation to the activities of a consultant working for the PDAM. Consultants are often made available under foreign assistance contracts for planning and designing new physical works and for supervising the implementation thereof. A growing tendency can be observed for involving the same consultants for matters of institutional development. For Dutch funded water supply projects in Indonesia DHV and Iwaco have been mostly involved, in cooperation with Indonesian consultancy firms.
Sometimes twinning is a *follow-up* on the construction of new facilities. In other cases, a deliberate link to ongoing activities of consultants is sought; we will call this *coalition*. In both cases, an effective and complementary intervention can be achieved.

In the case of *follow-up*, this is not only a matter of available expertise, but has also to do with the governmental structure regarding PDAM. Technical issues for water companies (mainly construction work) and thus all consultancy activities for physical works, resort under the Ministry of Public

to be higher with larger, relatively well developed PDAMs. Such choice may be in conflict with the Dutch policy of geographical concentration.
Until now twinning was focused on PDAMs which have received prior Dutch assistance. Twinning thus has become a logical complement to other Dutch development efforts in the water supply sector in Indonesia. The fact that at present 3 of the twinning arrangements are outside the prevailing concentration regions is because formerly water supply activities were not limited to these areas. In the future this complementary action will be less obvious; assistance to the sector has shifted away from individual PDAMs to more general institutional support as far as the urban water supply sector is concerned.

It should be noted that twinning makes contributions to Dutch development policy on two other levels as well:
- the base of support for development cooperation in the Netherlands is broadened: inputs are given at a decentralized level (companies and their employees), and public awareness is positively stimulated. This will be dealt with in chapter 4;
- expertise that would otherwise be inaccessible to developing countries is made available.

3.2.4 Strong and Weak Points

The strong points of the present twinning programme are:
- the mutual trust between partners, the feeling of being "brothers". Together with the fact that there is little involvement of other parties, this makes for an atmosphere in which transfer of know-how can succeed;
- the flexibility to shift attention if and when required;
- the long duration of twinning arrangements avoids the need to squeeze activities in short periods;
- the availability of first hand operational experience with a water supply enterprise;
- the active and enthusiastic support by PERPAMSI and VEWIN.

Weak points that should be mentioned are:
- a certain degree of amateurism. As explained before, this comes in several flavours;
- the lack of in-depth and complete understanding by the Dutch partner of the problems in the PDAM and therefore the risk of undertaking less relevant activities in the twinning programme.
- several fundamental differences between the water supply sectors in the Netherlands and in Indonesia, leading to either the non-availability of services required, or to the rendering of inappropriate services.
- the same applies in some cases to the twinning partners; the match is not optimal;
- the relative isolation in which twinning takes place;

3.2.3 Development Policy

The Netherlands development policy puts accents on alleviation of poverty, achievement of sustainable development, specifically in the environment, and improvement of the position of women. For water supply and sanitation projects in Indonesia, an accent is put on institutional strengthening; geographically, the focus is on West-Java, Aceh and the Maluku.

The priorities of GOI are in the continuation of physical infrastructure development, human resource development, operations and maintenance, and poverty alleviation.

The impact of twinning in these fields is as follows:
- *poverty alleviation*: no direct effects, but possible indirect contribution. In Indonesia, water tariffs are strongly progressive and in addition higher for those consumers who can afford to pay more than the average. This allows for cross subsidies towards social tariffs and public taps for the less well to do sections of the community. Improved PDAM performance enhances this possibility. Some argue that the removal of illegal connections in fact results in disconnecting poor people; others claim that it is usually with the rich that such illegal connections are found. It should be noted that Dutch water companies have no experience with either cross subsidies (on the contrary: regressive tariffs are common) or public taps. Adherence to this policy issue thus is a matter of putting an additional requirement in the contract between DGIS and the Dutch enterprises, not of making expertise available;
- *sustainable development*: negligible effect. More efficient use of water resources is a key issue in the more densely populated areas of Indonesia, but refers mainly to the prime consumer: irrigation;
- *position of women*: no effect as far as their position in Indonesian water supply companies is concerned. These already have a better track record than their Dutch partners. There is a limited and indirect positive effect on the position of women in the households in the supply area since twinning does enhance adequate provision of water to the population;
- *institution development*: positive. When twinning matures, attention shifts from technical inputs to managerial optimization;
- *continued physical development*: not main area of twinning, but for consultants;
- *human resources development*: positive. Contributions are made through various forms of staff training (on-the-job, formal) and through field visits;
- *operations and maintenance*: positive. This is the key field of attention of twinning.

The Netherlands policy to apply a geographical concentration for the water supply and sanitation sector could become a constraint for twinning when strictly implemented. Apart from considerations regarding the type of water source and the presence of a consultant, the efficiency of twinning is likely

4. TWINNING STIMULATING DUTCH PUBLIC AWARENESS

In this chapter, the term *information supply* is used to indicate provision of information about third world issues. Information supply can lead to awareness raising, but this is not necessarily the case. *Awareness* is defined as appreciation of and insight in historical, political and social causes and mechanisms which lead to processes of (under)development.

4.1 DGIS Policy on Awareness Raising in the Netherlands

In order to spur public support for Development Cooperation, DGIS spends a small percentage (less than 1%) of its total budget on awareness raising and information supply activities. Two thirds of the realization of such activities lies with private initiatives, the remainder is handled by DGIS itself.

The second half of the eighties and the beginning of the nineties have shown a trend to make information supply and awareness raising programmes concrete and clearly recognizable for a large part of the Dutch population. In this way people can be addressed, who would otherwise be difficult to reach with more abstract messages on development issues.
It is the official DGIS policy to encourage local and regional initiatives as a vehicle to enlarge public support for development cooperation. One type of such initiatives is twinning between towns, social organisations or enterprises in the Netherlands and their counterparts in developing countries.

Following this policy, a paragraph in the contracts between DGIS and the Dutch water supply companies obliges the latter to provide information about the progress of the twinning activities to the wider public.
The formulation chosen is very global and does not specify target groups. Furthermore, hardly any guidelines or instruments are provided that would assist in determining the type of initiatives that could be undertaken, possible methods, or possible linkages with other initiatives in the region.

4.2 Objectives

Generally, formal objectives related to the information supply activities to be carried out by the twinning company have not been put on paper. Interviews revealed that the following objectives can be considered to apply to all water supply companies:

a. to publicize activities under twinning to relevant groups;
b. to foster a positive appreciation for the twinning activity and (indirectly) for the water supply company concerned.

In two cases the condition set by DGIS to carry out information supply activities was the direct reason that such activities were actually carried out.

- a certain degree of non-commitment. No specific targets have to be met, and there is no liability for services rendered;
- a certain tendency of PDAMs to allow activities which they would not have selected in case they would have to pay for them;
- the fact that the receiving PDAM has little say in the selection of persons for visits to Indonesia;
- the lack of joint evaluations and reporting.

3.3 Concluding Remarks

As stated earlier, twinning is a relatively small venture within a PDAM. One would expect that, as a result, the activities carried out under twinning would be used as examples.
There are several cases of other PDAMs becoming involved in ongoing twinnings, taking over experiences and approaches. On the whole, the direct spin-off is rather limited. This is obviously regrettable, as the total potential effect of the work is not achieved.

Although all water supply companies state to strive for openness in information, they nevertheless appeared rather reluctant to give publicity to the more negative experiences in the twinning relation. It is thought that this might endanger the support for twinning.

Lacking professional expertise about public education, the greater part of the messages concerns technical information and personal experiences. The message communicated primarily serves the purpose of justifying the twinning and does not aim at awareness raising.

4.3.2 Activities

In all cases, information supply activities are undertaken, although sometimes this has a character of progress reports.
Two types of information supply activities can be distinguished: internal and external. The main activities are summarised below.

Internal information supply

- All companies regularly publish about the progress of twinning in their personnel magazines. Some write articles in every edition. The magazines appear with an average of 9 times a year;
- Lectures and slide shows are organised 1 to 2 times per year, usually by staff who went to Indonesia;
- On special occasions (e.g. centenaries), additional attention is given to twinning, albeit mostly on a low profile basis;
- In one case, a special "Indonesia week" has been organised. Main attention was given to cultural aspects such as music and food.

External information supply

- Messages in local, regional and sometimes national press (mostly newspapers, sometimes magazines and radio). The press wants news items and is thus only interested in special occasions, such as signing of contracts, or arrival of Indonesian visitors (mentioned by all);
- Writing lesson programmes for school children with a circulation of 10,000 and 7,500 respectively (2 cases);
- Participation in special events such as exhibitions and street-fairs (3).

Regarding the intensity and frequency of information supply it is noticed that most companies provide a rather modest but continuous stream of information with small peaks during the starting period and special occasions.

It appears, however, that all water supply companies have a certain interest in undertaking information supply activities. The main reason is that they need a justification towards their personnel, whose support they need and who must actually fill in twinning. This support can only be achieved by a regular supply of information.

Furthermore, almost all water supply companies attach importance to information supply from the point of view of Public Relations, although some were reluctant to use this term. By publicizing their twinning activities they give evidence of a social commitment being part of their "enterprise culture". In their opinion this creates a positive impression of their organisation, internally as well as externally. Moreover, having international relations enhances the status of the organisation.

Other reasons to supply information are: accountability to customers (mentioned 3 times), obtain consent of the board of directors and share-holders (2 times), awareness raising of customers that it is a privilege to have safe drinking water (1), and fund raising for projects in Indonesia (1).

The water supply companies consider themselves neither responsible nor equipped for awareness raising activities. However, they are generally of the opinion that twinning is a suitable tool for information supply programmes, because of its concreteness. On the other hand they unanimously state that their main objective is to take care of good water supply in the Netherlands. Twinning itself is an extra activity, whereas information supply about twinning is only a derived objective and hence does not need priority.

This vision corresponds with the rather minimal amount of time and money invested in the information supply. The number of person-days invested is estimated at an average of less than 10 days a year, with one exception where the company claimed to spend about 30 to 40 days a year.

4.3 Activities Carried Out

4.3.1 Main Message Communicated

The core of the message communicated is that the Dutch have a good water supply system[14], better than in many other parts of the world. Dutch water supply companies can thus help to improve companies abroad.

The word *help* is essential in this message. The transfer of knowledge under twinning is given the image of help of the big Dutch brother to his small Indonesian brother. Equality in this relation is not the prime characteristic.

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[14] which is apparently not as self-evident as many feel it should be.

From the viewpoint of effect, it is crucial to know what is being done with the information and with the support:

1. The majority of the people simply reads or hears the message and at best inquires from time to time about the progress of the activities. They are interested because it is *their* company which is involved in development cooperation (or "aid").
2. A limited group of people has a deeper interest and attends lectures, slide shows, etc. This type of activities draws an average public of 20 to 40. Equally limited are reactions on publications in personnel magazines. Evidently, the number of reactions depends on the intensity, duration of the twinning (beginners enthusiasm) and content of the message.
3. A small group of about 10 to 20 "twinners" in each company is directly involved in the visits to Indonesia. It is this group that is deeply involved in the activities. They certainly have achieved greater awareness about third world issues. They often undertake information supply activities towards their colleagues, friends and family, and in some cases to schools (Zeeland and Friesland). Sometimes they initiate new initiatives such as fund raising.

4.4.3 Spin-off Effects

Spin-off effects are beyond the responsibility of the water supply company itself. Two cases have been found. One concerned an ad hoc fund raising activity by a local Lion's Club. In another case a permanent fund was established for health related projects in the region of the Indonesian counterpart.

The information supplied regarding spin-off activities basically serves fund raising.

4.5 Cooperation with Other Organisations

The water supply companies do not mutually exchange experiences about the type and methods of information supply activities undertaken, except occasionally, informally and on an ad hoc basis.

In five cases, water companies reported to be unaware of the existence and activities of relevant national or regional organisations involved in public education such as COS (regional centres for education on development cooperation), even if based in the same town.
The other two companies were cooperating directly or indirectly with such organisations. One of the other five cooperated with a third world education organisation for a special occasion (development of a school lesson).
Cooperation is based on complementarity. The water supply company supplies concrete information on a project in Indonesia. The other organisation provides expertise in the field of public education on third world issues (COS Zeeland) and/or information about other relevant initiatives in

4.3.3 Public reached

The public reached can be divided in two main groups:
- people related to the company: (ex-)personnel, employees who are actively involved in twinning (hereafter called "twinners") and their family and friends, board of directors, and shareholders.
- external groups: press (all companies), customers in general (6 cases), school children (2), other enterprises or public utilities (2).

The majority of the information about twinning is supplied towards the first group.

4.4 Effects and Impact

No measurement of effect or impact has taken place by the water companies, nor within the scope of this evaluation. A reasonable indication of the effects of the activities was obtained through interviews at the companies.

4.4.1 Publicity

It can be assumed that all personnel, shareholders and boards of directors are aware of the existence of a twinning relation between their organisation and an Indonesian counterpart. They are all at least informed in main lines about its objectives, type of activities and progress. In total, some 4,000 to 5,000 persons are thus informed.

The degree to which **outsiders** are familiar with the twinning relation is limited, because no regular messages are supplied by the water companies. Only through spin-off initiatives and cooperation with other organisations, outsiders have become acquainted with the twinning activities. This is the case in the provinces of Zeeland and Friesland and, to a lesser extent, the city of Rotterdam and its surroundings.

4.4.2 Support

In all Companies some critical voices are heard about twinning. The main criticism is that activities in Indonesia are beyond the main objectives of a water company.
Another criticism is that the journeys to Indonesia are essentially holiday trips. Efforts were undertaken to counter these ideas by stressing the usefulness of twinning.
In three cases, criticism was related to the political system in Indonesia.

On the whole, sufficient support exists to sustain the twinning relation.

7. Negative developments in twinning are hardly reported about. This implies that there is a risk of conflict between the objectives of image building of water supply companies and public awareness raising.
8. Although it is DGIS policy to stimulate public education on third world issues, DGIS has not put great efforts to discuss possibilities in this respect with the water supply companies.

4.6.3 Recommendations

1. Water supply companies should seek more cooperation with organisations and networks oriented on public education on third world issues, such as COS or municipal working groups. Such cooperation could provide the professional capacity on public education on third world issues.
2. An exchange of experiences about information supply between the water companies could be stimulated or organised by VEWIN.
3. Water supply companies that did not yet involve their PR departments in twinning on a structural basis should start doing this.
4. The water supply companies should aim to involve their Indonesian counterparts in the information supply activities. Especially the visits of Indonesians to the Netherlands provide good opportunities in this regard.
5. It is recommended that each water supply company has at least one employee sent to a course on public education and awareness raising activities on third world issues. This would enhance the professional quality. Such courses are regularly given by various (mainly government subsidised) organisations such as Kontakt der Kontinenten, KIT, COS and SNV.
6. DGIS should stimulate information supply and awareness raising activities by providing the water supply companies more concrete information and advices about possibilities to carry out such activities and about possibilities to cooperate with other organisations.

the region (COS Zeeland and the municipal coordinating group on twinning in Rotterdam).

The cooperation ensures a larger continuity in attention and publicity than could be achieved by the water companies alone, and against minimal costs. Exemplary in this respect is the DWL Rotterdam, which is regularly approached to take part in manifestations, despite their passive attitude.

4.6 Conclusions and Recommendations

4.6.1 General Conclusions

In relation to the quality of the message, and the limited amounts of time, money and expertise invested, effects of publicity and support for twinning have been cost-effectively generated.
The effects regarding public awareness and spin-off activities, however, are very limited. Only the group of "twinners" (some 200 persons altogether) has achieved greater and deeper awareness about third world issues.

Twinning in its present form has only limited value as a means to broaden public support for development cooperation by public education. Water supply companies generally do not feel responsible for public education and awareness raising, which they also consider beyond their capacities.

Only when liaisons are established with complementary organisations (i.e. organisations with expertise in public education and awareness raising) can twinning activities provide relevant and interesting starting points for public education.

4.6.2 Specific Conclusions

1. Water supply companies have an interest in information supply in order to acquire support from their employees, to build their image, and to take away the idea that twinning equals holiday trips.
2. The messages communicated aim at demonstrating the usefulness of twinning and basically talk about "aid" in the form of transfer of knowledge from the Dutch to the Indonesian company.
3. The majority of the public reached is linked to the water companies, as employees, family, shareholders or board of directors. This public numbers about 4,000 to 5,000. Outsiders are hardly reached.
4. The effects of the information supply generally correspond with the aims of the water companies (see point 1) and with the obligations of DGIS.
5. The information supply activities are cost-effective, even though time and money invested is limited.
6. The water supply companies are not equipped for awareness raising activities. Nevertheless, cooperations with specialized organisations or networks are not sought.

- twinning is – by definition – a secondary activity for both partners;
- care should be taken that Dutch "sectoral habits" are not implicitly transplanted in Indonesian circumstances (e.g. doing your own design work).

Theoretically, the interventions of the Dutch partner in a twinning relationship can have the nature of:

- *take over* or doing (part of) the actual work: tasks that are thought to be essential for the achievement of the goals of twinning. Currently, examples are found in hiring local fitters in uaf reduction programmes, or appointing a permanent representative to supervise such programme;
- *interim management*: similar to the above "take over" at management level, but with the specific aim to bring about a change. Interim management is often applied in situations where the process of change is too deep or risky to be carried out by normal management;
- *demonstration*: a new approach is tested or demonstrated in a limited field. During the demonstration, the Dutch could (not should) take over part of the tasks;
- *counselling* or discussion approach: focus is put on exchanging ideas and creating a forum for reflection;
- *consultancy*: advice is given from the position of an "expert". Implementation of the advice depends whether the expertise is recognized as useful.

The above list reflects a scale of decreasing "involvement" of the Dutch partner in the PDAM. With this decrease, the "sustainability" increases. Also the total effort required by the Dutch water company is less with counselling and consultancy than with take-overs or interim management.
It will require a careful consideration of the different requirements to achieve a balanced approach, as twinning needs both a high level of involvement (to create the necessary trust), and sufficient levels of sustainability and manageability.

5.1.2 Godfather and Godchild

In Indonesia, a new approach to complement twinning is emerging: Bapak Angkat or *Godfather*. In essence, the approach is similar to that of twinning, but the relationship is established between a big and strong PDAM (the Godfather) and one or more small and weaker PDAMs (the Godchildren). This approach offers advantages for current and future twinning arrangements. Firstly, a twinning relation appears to be more efficient when partners are more comparable: the knowledge available at a large Dutch water supply company is much more applicable to a bigger and stronger PDAM than to a small and weaker partner. Secondly, any spin-off effect of twinning increases the effectiveness of the intervention. Thirdly, some of the bigger PDAMs are performing quite reasonably. Subsidizing twinning in such a context is difficult to justify. When the twinning is complemented by a Bapak Angkat arrangement, a justification for the twinning can more easily be given.

5. FUTURE OUTLOOK TO TWINNING

5.1 Objectives and Approach of Twinning

5.1.1 Main Objectives

It has become clear that twinning should aim to have its largest impact on issues of operational management. This has two components:

- managerial tools, such as maintenance schedules, planning boards, job-descriptions, operation manuals, procedures (inventories, purchases, repairs, administration), cost-benefit analyses, and the like.
- increased staff "motivation": attitude, feeling of responsibility, incentives, delegation of authority, corporate culture, etc.

Both components should be addressed simultaneously.
Increasing motivation in the PDAMs may be one of the most important issues in twinning. As stated before, Indonesian visitors to the Netherlands quickly recognize the difference with their own company. Understanding how this is brought about and sustained is often more difficult. Prolonged exposure to the Dutch situation, preferably in more than one visit, can help foster understanding and thus should be promoted.

Furthermore, in certain cases twinning can provide a basis for problem analysis. For example: in the case of unaccounted-for water, an assessment of the elements and their relative importance could be made, followed by a determination of a (technically and financially) optimum level of uaf.

It is equally clear that contributions cannot be made unless there is a basis for mutual trust. Such trust is partly "sectoral": at the moment, the Indonesian water sector has great confidence that twinning can be trusted to contribute to the performance of a PDAM. Arranging a new twinning nowadays makes use of this momentum and can be a relatively fast process. Nevertheless, an initial phase of "orientation" is needed. Twinning is not only a matter of a relation between companies, but also between individuals. The first exchange visits will necessarily be of a rather general, unproductive nature. They serve to establish personal relationships and to create insight into each other's organisation. Working together with a counterpart is then more important than achieving results.

During a twinning relation some considerations should be kept in mind:

- twinning can not solve large scale problems, particularly not if they are short term problems. It can, however, stimulate that adequate attention is given to them;
- twinning should not be isolated from other activities in the water sector in Indonesia. Especially PERPAMSI and VEWIN have an important task in this respect;
- the ease with which improvements of a PDAM can be realized depends on the drive of the management. Vice-versa, twinning will not lead to any result if the management of a PDAM is uncooperative;

At present, such commitment is -- albeit informally[15] -- possible: twinning arrangements last 3 years but are usually extendable. Under formal cash ceiling negotiations, a commitment is depending on other, competitive proposals. Continuity will then be less obvious. Finally, the present arrangement generates a relatively strong enthusiasm with the PDAMs. This is to a large extent because twinning is one of the few activities which they consider as their own, with little or no involvement of other authorities. It is therefore beneficial in improving the corporate identity of the PDAMs involved. This situation would certainly change when twinning has to follow the "Blue Book" procedures.

Separate financing of twinning would be even more desirable, provided that such set up would have an additional mandate to increase the quality of the process. The process with which professionalization is achieved in each twinning arrangement and the exchange of experiences between the arrangements in different countries could be improved when twinning is assisted from a central point. An approach similar to university cooperation ("SV") could be considered.

It should be noted that the contributions of DGIS seem rather insignificant compared to the financial potential of the Dutch water supply companies. Nevertheless, they are of crucial importance to mobilize these companies for twinning: a significant contribution by the Dutch government indicating that the twinning arrangement is considered a valuable contribution to development efforts is required.
Without this, the majority of the companies would not be able to motivate their employees or obtain endorsement of their shareholders and boards of directors.

5.2 Increasing the Application of Twinning

In its current form, twinning is essentially a *tool* in development cooperation that requires the involvement of substantial numbers of organisations: a single Dutch water supply company can only support one, maybe two, twinning arrangements.
The question to increase the overall application of twinning thus has two lines of answers:
- increase the number of twinning arrangements per organisation.
- increase the number of organisations involved in twinning arrangements.

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[15] Note that this flexibility has been offered by the Country Desk DAL/OA as well as BAPPENAS. DPO/AN funds cannot be extended at all, due to regulations and budget limitations.

An important aspect is in timing. Bapak Angkat may be most effective when it takes place in the same period as the twinning with the Dutch partner, because inputs from the Dutch twin can then be given to more enterprises at the same time. However, when the twinning PDAM is not performing at a higher level than the Godchild, the Bapak Angkat approach bears no fruit. In such case, it will be better to wait (perhaps even several years) and check whether twinning has brought about sufficient improvements with the Godfather to be.

5.1.3 Sandwiching

Twinning should not only comprise a collaboration between two enterprises, but also a linkage at "micro-level". It is proposed to use an approach in which direct coupling of the various managers and heads of departments is established. In such a *sandwich*, someone from PDAM management is linked to his direct counterpart at the Dutch water company. This aims to ensure optimum communication and exchange of know-how.

Sandwiches can be created at any level to which the overall twinning is likely to contribute. Most likely, it will cover top and middle management.
For optimization of communication at the sandwich level, *multiple* visits should be organized at *both ends*. Visits from Indonesian counterparts will not only aim to "open the mind", but in later stages focus on application of specific management tools to be put to use at the PDAM.
It can be considered to involve counterparts in each other's daily routine work for optimum understanding.

5.1.4 Funding

The first twinning arrangements were financed from DPO/AN ("Activities in the Netherlands") funds. These funds can only be utilized during three years for each single activity. GON is therefore considering to bring twinning under normal bi-lateral development cooperation between Indonesia and the Netherlands. In such case, each twinning relation becomes a "project" in the Indonesian "Blue Book" and will have to be financed from the funds available under GOI-GON bilateral development cooperation, the "cash ceiling".
Because twinning is then directly competitive to other forms of development cooperation, administrative requirements will be similar to e.g. consultancy. In comparison to the present situation, this means a substantially higher complexity.

Twinning, however, is largely depending on voluntary inputs by the Dutch water supply companies. The risk that the interest of these companies is eliminated appears too large.
Furthermore, twinning has a strong character of a process approach with an undetermined duration. This specific aspect requires long term commitments.

competent existing staff is sent on mission and replaced by temporary, possibly less qualified workers.

All in all, there seems to be little room to substantially increase the number of twinning arrangements per company, while the total number of water supply enterprises is expected to decrease to about 20.
In that light and for the water supply sector in the Netherlands, one may expect that the current number of 7 (or 9, when counting Groningen and Drente, or even 11 when counting the "triplets" in Bogor and Cirebon) can grow no higher than about 40. As this number would apply to the whole world, the limitations of twinning as a tool in the water supply sector are evident.

5.2.2 Organisations Involved in Twinning

An important potential for the application of twinning is in the increase of the number of organisations involved. This would have benefits regarding issues of public awareness in the Netherlands, as it was found that effects of this nature occur mostly amongst staff of the companies. Since the number of water supply companies will be very limited, organisations from other sectors have then to be considered.

Even now twinning is not a privilege of the water supply sector. Activities are already carried out under a similar name between municipalities. It is likely that twinning can be extended to other sectors of development cooperation as well. Sewerage, waste water treatment, and solid waste disposal would be logical complementary fields.

The principal bottleneck for this option is in cost-effectiveness.
It has been stated earlier that in a sector twinning grows to a certain degree of cost-effectiveness, but not after passing some phases of clear amateurism and inefficiency.
Increasing the application of twinning in numerous sectors puts the issue of professionalization at the forefront.
The required professionalism is found in the approach towards problem analysis, transfer of knowledge and interventions. It should be remarked that it does *not* suppose that a company that establishes a twinning relation should become a professional "developer" -- on the contrary: twinning is only credible as a tool when the profession of the partners is in their own sectors.

Professionalism regarding twinning refers to the speed with which an efficient and effective relationship can be put to practice.
The main mode to achieve greater professionalism is in monitoring and exchange of experiences. For the water supply sector in Indonesia these roles are already played by VEWIN and PERPAMSI.

5.2.1 Number of Twinning Arrangements per Organisation

The Dutch water supply companies involved in twinning at present, state that the activities put such a large burden on the organisation, that it is not possible to sustain more than one or two relationships at the time. The main bottleneck is the availability of staff. People sent on mission are usually not replaced and thus rely on the flexibility of themselves and their colleagues to perform their (Dutch) duties in less time. Twinning is therefore based on marginal increments of labour productivity -- which can only be achieved with the specific argument of providing assistance to the twinning partner. In such a setting, there is indeed very little room for an increase of twinning. Perhaps two arrangements can be sustained by one organisation, but most certainly not ten.

There are three options to be checked.
First, the twinning with one partner may not require the inputs by the same staff as the other. Water supply companies could probably sustain one twinning focused on treatment, and another directed at distribution. However, twinning shows a tendency to converge towards management issues. The availability of these people is likely to become the new bottleneck.
Secondly, the intensity of the inputs to a twinning relationship can be minimized. The least desirable is then to have a permanent presence with the twinning partner -- which coincides with the argument that this would be bad for sustainability anyway. However, it is difficult to estimate the minimum number of exchange visits required to maintain a relationship based on trust and confidence.
Lastly, the required increase of labour productivity can be circumvented. This requires that additional staff is hired to compensate for the labour inputs in twinning. This leads to some dangers, however:

- hiring additional staff increases the visible costs of twinning. Apart from the question who is to pay for this (and, when twinning is to be in substantial numbers, the companies will doubtlessly point at DGIS), the crucial question will focus on cost-effectiveness. At present, twinning can be considered cost-effective because of the voluntary labour input. Unless the activities are executed more efficiently, payments for labour inputs will render twinning below reasonable levels of cost-effectiveness.
- the feeling of brotherhood of twinning is reduced. In cases where the newly hired additional staff would be sent on mission instead of the company's permanent staff, the immediate benefit of having a relationship between two water supply companies is diluted. The additional staff is not "culturally" part of the Dutch company. Furthermore, it remains to be seen whether additional staff with the required operational expertise can be easily hired.
- what is now a minor, secondary activity for the Dutch water company may develop into a more substantial business as sort of "twinning consultant". This may be hard to justify to the shareholders, certainly if

As VEWIN is currently involved in a number of these tasks already, this organisation would be a natural starting point for discussing the set-up of such an agency.

Some care should be taken not to immediately assume that VEWIN will be this agency, as the position of VEWIN is based on a voluntary "joining of forces" of the water supply companies. As a central facilitating agency, VEWIN would acquire a certain degree of authority over the companies involved in twinning. This may lead to situations of conflict of interest.

5.3.2 Some Procedures

When setting up a twinning arrangement, an in-depth analysis should be made of the strong and weak points of the PDAM and the potential fields in which the Dutch partner can contribute. Existing methodologies (such as ISSP) should be used whenever possible. External assistance in such formulation process could be useful from the viewpoint of clarity and facilitation.

During execution of the different activities under twinning, monitoring is required. Such monitoring should be of a low-profile but more or less continuous nature. It is conceivable that an external organisation that is trusted by both partners can be found on the spot, as happened in two cases with Dutch consultants. An alternative to be considered is to use local PMDU as "monitoring agent".
The appointment of Dutch permanent representation for this purpose is discouraged.

It is proposed that the partners prepare joint annual reports that cover the following points:

1. a summary of the activities in the past year and an indication of the general progress;
2. a comparison of the results achieved with the plan of action of that year;
3. constraints and bottlenecks encountered and remedial actions taken or proposed;
4. a review of the contractual and financial situation;
5. any other information relevant to assess the effectiveness and efficiency of the twinning arrangement;
6. a plan of action for the coming year.

Apart from considerations regarding efficiency and effectiveness, a number of other aspects should be considered when extending twinning to other sectors:

- first and foremost: has the Dutch sector something to offer? Is the operational knowledge relatively higher than in other potential donor countries? Is the know-how generally applicable and not specifically suitable for Dutch circumstances?
- in order to give momentum for twinning at top management levels in the Netherlands, it should become "fashionable" *in the sector* to have twinning relationships with foreign partners. This probably requires that key persons from the sector in question are supporting and promoting the idea. Any pilot twinning arrangement is best started with an organisation to which such "key persons" belong.
- twinning is easiest applied in those sectors where labour productivity can still be improved. In general one would expect this to be the case with (semi)governmental institutions rather than with private enterprises.

5.3 Monitoring and Control

5.3.1 Central Handling

Currently, twinning itself is a matter of each individual water supply company. At each of the respective national levels, a forum for exchange of experiences has been created. These fora are put under PERPAMSI and VEWIN respectively, two organisations that can be considered to have established a twinning relation themselves.
Where it concerns the subsidy of (part of) the costs, twinning resorts under the country desk for Indonesia (DAL/OA) and the special fund for activities in the Netherlands (DPO/AN), both of DGIS.

DGIS experiences difficulties in efficiently handling the different new requests and managing the ongoing contracts. This is caused by the large variety of the twinning arrangements, but mostly by the inexperience of the Dutch companies with policies and procedures at DGIS and lack of experience in concise reporting.

It is therefore proposed to have a facilitating agency in the Netherlands to fulfil two functions:

- assist in streamlining of procedures, in understanding DGIS policies and in establishing formats and checklists for reporting. Requests, proposals and reports would then be presented to DGIS in adequate formats only;
- contribute to professionalization by means of exchange of experiences, gathering relevant information about the Indonesian water sector and existing resources, stimulating the communication between potential twins, and the like.

Conclusion:
Twinning partners are often matched on the basis of perceived similarity of size. This similarity, however, can not be uniformly expressed as number of employees, house connections, and the like because of differences in the characteristics of the sector in Indonesia and in the Netherlands.
Moreover, in some cases, the partners are essentially different regarding sources of water and types of treatment. As a result, the type of know-how available at the Dutch side can not be utilized up to its maximum.

Recommendation:
When selecting a twinning partner, an important criterion should be the matching of the source of water (surface vs ground- or spring-water) and the resulting type of treatment (extensive and chlorinated vs simple without disinfection).

6.2 Focus and Aim of Twinning

Conclusion:
When starting a twinning relationship, the partners have a tendency to formulate concrete points for action at a rather early stage. It is perceivable that the main areas of concern for the PDAM are thought to be in those fields where the PDAM is clearly differing from the Dutch partner. This has contributed to a general focus on unaccounted-for water[16], even in cases where PDAMs are performing above Indonesian averages.
In general, this may lead to a bias towards technical issues that are easily observed. It may also lead to emphasize observations by Dutch visitors, rather than an analysis of the PDAM as entity. In this respect, it should be noted that most PDAMs are strongly growing, and have to put much of their management attention to new expansion projects.
Furthermore, it has been found that targets to be achieved are set at unrealistic levels (e.g. too much reduction of uaf) or that unrealistic targets are formulated (e.g. providing *drinking* water, or initial approach with too thorough block renovation).
Sometimes, it seems to have been assumed that twinning can help solve *all* problems in the PDAM.

Recommendation:
Prior to determining a plan of action for the twinning programme, an analysis of the main problems facing the PDAM should take place. Such "audit" could be carried out by both parties under external Indonesian assistance. Consultants from STD may play a role as external moderators. This should be the basis for a careful and detailed determination of the main activities to be carried out within the twinning arrangement. These should include the often

[16] also stimulated by the example of twinning arrangements that started earlier.

6. CONCLUSIONS AND RECOMMENDATIONS

In general, twinning is very highly appreciated by the Indonesian partners, although twinning is usually rather insignificant in quantitative terms for the total of the organisation. The possibility to "open the mind" is specifically mentioned as an asset, while having a twinning relation strongly enhances the status of a PDAM. Finally, the twinning relation is used in some cases as a leverage to bring about changes in a PDAM.
Also the Dutch partners appreciate twinning, mainly for the possibility to gain at the personality level and for the chance to do something for people in less fortunate circumstances.

Although the impact of twinning is less than should have been expected in the most relevant field of operations and management, the overall achievements appear to be adequate. The efficiency of the total programme is acceptable, assuming that the majority of the manpower inputs from the Dutch companies are actually free. Although improvements are certainly possible, it can be stated that the present programme is a valuable instrument in the development of the Indonesian water supply sector.
Of course twinning can never be a panacea for all problems in the sector. It should be used complementary to other instruments such as formal training, consultants' services, services by suppliers and contractors, etc.

The main conditions for success are similar to those in most other instruments: commitment of the key figures, careful planning of the activities, selection and preparation of qualified and motivated personnel, monitoring of progress, early identification of possible constraints and the will to find solutions, etc.

6.1 Matching Partners

Conclusion:
Twinning-efficiency is highest in the twinnings with stronger and bigger PDAMs. An additional advantage is that this enables secondary twinning, the Bapak Angkat approach.
Tangible results, however, are more easily obtained in twinnings with smaller PDAMs.

Recommendation:
In case efficiency of the process of transfer of skills should be the leading factor in selecting a twinning partner, stronger (and usually bigger) PDAMs are to be favoured, even if they are outside the Dutch concentration regions.

Recommendation:
A valuable alternative to visits to the Dutch company may be found in exchange visits between PDAMs in Indonesia, especially for the lower echelons. PDAMs will have a greater degree of mutual similarity and more readily applicable elements may be picked up.
A coordinative role of Perpamsi will be essential to put such visits to practice.

Conclusion:
Visits by Indonesians to the Netherlands tend to concern management of PDAM, whereas return visits are often made by operators and working level employees of the Dutch partner. During the visit to the Netherlands, a natural link between the two is established. As a result, the Indonesian visitors are often provided with skills that they will not apply themselves, leaving them with the job to transfer the knowledge gained to their subordinates.

Recommendation:
The practical consequence of company twinning would be individual twinning: management of PDAM being directly linked to management of the Dutch company. In such "sandwiching" approach, both individuals would be at similar management levels and would be involved in mutual visits. Depending the aim and subject of the twinning programme, and the available managerial skills at PDAM, the staff to be involved in sandwiching may vary from top management to Head of Section.
The number of visits to PDAM by Dutch staff would be principally equal to the amount of visits by PDAM counterparts. Several such mutual visits should take place in order to facilitate the understanding of potential and constraints at each other's work, and to create a base for a personal relationship.
Additionally, operational staff from the Dutch partner could visit PDAM in order to provide them with specific training in technical, administrative or PR skills.

Recommendation:
In cases where the Indonesian visitor acquires new knowledge of which the implementation is likely to be difficult, or where substantial transfer of knowledge to colleagues and/or subordinates in Indonesia will be required, attention should be given to his (or her) didactical skills and presentation techniques during the visit to the Netherlands.

neglected aspects of financial management at the PDAM. Existing tools for such a process could be used, such as ISSP.

Recommendation:
Unaccounted-for water should not be approached as a primarily technical problem of physical leakage. It can be a starting point of the twinning relation, however, in order to create a basis for mutual trust and confidence between the partners. The main target of a twinning relation should be the strengthening of PDAM management, leading to greater effectiveness and efficiency of operations.

Recommendation:
Whenever possible, the relation between costs and benefits should be established. Particularly in case of intensive leak reduction activities this should be given more attention.

6.3 Structure and Aims of Mutual Visits

Conclusion:
Visits of PDAM staff to the Netherlands are a key element of twinning. They contribute to a high "status" of the twinning arrangement within the PDAM, thus leading to a more effective transfer of knowledge.
Visits are now seen as general introduction to the partner's system. The main effect is "opening the mind" for differences in management style and organisational culture. During the first visit, little specific elements can be picked up and few immediate questions can be raised. As a result, the visits have limited practical use for the staff concerned. It also leads to a feeling at the Dutch company that the visits are a burden.

Recommendation:
Indonesian staff should visit the Dutch partners at least twice. The first visit serves to "open the mind" and is followed by a period of self-study and analysis of PDAM in Indonesia.
The second visit thus can focus on specific questions and issues with immediate relevance to the work in Indonesia. There should be a clear programme of work, involving the guests in the daily routine operations, rather than putting them in a spectator's position.
Especially during repeat visits, a link to the "sandwiching partner" should be maintained.

Recommendation:
Ensure that contributions of Dutch staff are made in a "sandwiching" situation, as this leads more naturally to involvement of the PDAM counterpart in the actual execution of the work.

Recommendation:
Refrain from a type of inputs that can be characterized as non-routine; such work will not have immediate effects on regular operations and maintenance skills and is best left to contractors and/or external consultants.

6.5 Performance of Twinning

Conclusion:
DGIS subsidy per twinning and per year is on average Dfl 150,000. We estimate the total *value* of the manpower input at roughly Dfl 150,000 per year per twinning. Because only part of this manpower has to be hired additionally, the manpower *expenses* may be something like Dfl 50,000 per year. Cash expenditures and materials and equipment given to the Indonesian twin are estimated by us at a minimum of Dfl 50,000 per year per twinning. The total costs for the Dutch society for twinning would thus amount to at least Dfl 250,000 per year per twinning relation.

Recommendation:
DGIS may consider their present average input per twinning relation as a reasonable maximum.

Conclusion:
Twinning is effective, meaning that positive results are obtained. Relatively, more results are obtained in PDAMs with smaller staff. Present twinning activities are most effective in technical matters and less in management and administrative areas.
Whether twinning is also efficient, meaning that enough results are obtained compared to the input, is difficult to say. This is because (i) the type of activities is often difficult to quantify, (ii) the twinning activities often are part of other ongoing activities and (iii) the effects often become visible only after a long time. Efficiency is highest in the twinnings with stronger and bigger PDAMs, and in fields like water meter repair shops, supply of materials and equipment, computer applications, cleaning of pipelines, etc. In comparison to the DGIS subsidy alone, twinning is reasonably efficient. Compared to the total costs to Dutch society, it is less so.

Recommendation:
More attention should be given to increasing the effectiveness in the areas of management and administration in order to realize institutional strengthening. This means that a stronger focus is

Conclusion:
Motivation of staff is important for the functioning of an enterprise. Twinning is having a positive effect on motivation of the staff of the PDAMs, particularly on those who have visited the Netherlands. But also the motivation of staff of the Dutch companies is enhanced by their involvement in the twinning activities.

Recommendation:
As many people as possible in the hierarchical line should have a chance to visit the Netherlands in order to obtain synergy and mutual understanding.

6.4 Types of Inputs of Dutch Staff

Conclusion:
In two cases, a permanent representative of the Dutch partner is based in Indonesia. In a third case, the frequency and planning of missions by Dutch staff is such, that no interruptions occur in their presence at the PDAM.
It is our opinion that this is undesirable. First, the Dutch tend to take over part of the responsibilities of the PDAM. Second, it can be an advantage having regular fall-backs in progress, as this provides opportunities to analyze the reasons and required action to be taken by PDAM management. With permanent inputs from the Dutch partner, such fall-backs are postponed until much later in the twinning programme.

Recommendation:
Refrain from permanent representatives or representation, unless a true need can be formulated. The guarantee for continuous progress is not a valid argument.

Recommendation:
The two partners should monitor the activities such that regular assessment of the process of transfer of skills is made. In this transfer process, the initiative should be with PDAM, not with the Dutch partner.

Conclusion:
Examples were found that parts of the work of PDAM are taken over by Dutch staff. In a similar case, it was aimed to break through a vicious circle of having insufficient funds for adequate leak reduction, leading to less revenues and thus lack of funds. This was done by hiring additional staff of a private contractor on the budget of the Dutch partner.
It was found that these approaches have not led to sustainable results.

Conclusion:
Increase of "prestige" is an important side effect of twinning for the PDAMs. A higher status facilitates the transfer of know-how to other PDAMs in the region through the Bapak Angkat approach.

6.6 Institutional Setting of Twinning

Conclusion:
Given the fact that twinning primarily should aim at institutional strengthening, the Ministry of Home Affairs is a logical party to be involved in the twinning relation.
Until now, the involvement of the Ministry of Public Works has been very limited. However, a larger future role is desirable, given the importance of technical matters and because Public Works has developed several tools for institutional development that can be useful for twinning, such as in Human Resources Development, In Service Support, PMDU, etc.
PERPAMSI and VEWIN are already playing a very active role in supporting and guiding the twinning activities.

Recommendation:
More involvement of the Ministry of Public Works in the twinning activities should be arranged in order to profit from specific know-how, materials and experiences available with Public Works. It may be considered to invite a representative of Public Works to become member of the Twinning Group Indonesia.

Recommendation:
PERPAMSI and VEWIN can play an additional role in helping with the administrative and logistical aspects, particularly when twinning would come under the cash ceiling. They should not be placed in a position of authority, but act as a "facilitator".

6.7 Duration of Twinning Relation

Conclusion:
It takes a rather long time to obtain maximum benefit of twinning: 5 years is a very minimum, and 10 years or more should be reckoned with. The reason is that the type of activities on which twinning focuses require long term attention.
The twinning relation should end when effectiveness falls below a reasonable level and cannot be expected to increase in the near future. This may be the case when the Indonesian enterprise has absorbed most of what it can use from its Dutch partner, or when conditions do not allow a further effective transfer of know-how.

needed on the more difficult issues such as raising real interest in uaf reduction, attitude of management, etc.

Recommendation:
Twinning should not primarily aim at those activities of which the results can be easily measured. These are often not the essential aspects at which twinning should focus. However, when results can be quantified, this should be done. In all other cases, achievements should at least be compared to plans.

Conclusion:
It appears that a "coalition" with consultants engaged in the implementation of an expansion project, has advantages for both the twinning and the consultants' activities. Each has its specific strong fields. However, there is a certain overlap of these fields, for which a good coordination is required. Generally, PDAMs feel more at ease with their twinning partner than with a consultant. They feel that with a twinning partner it is easier to adjust activities to their actual needs.

Recommendation:
If possible, twinning should be arranged parallel with consultants' activities for physical implementation. In this case the respective fields of activities should be clearly defined.

Recommendation:
Twinning partners should be more aware of the strong and weak points of twinning in comparison with consultants' activities. The same holds true for the considerable overlap in the strong fields.

Recommendation:
In case of only twinning activities taking place, the twinning partners should from time to time check whether involvement of consultants for certain activities would not be a better option than doing it under the twinning. For example, if substantial design work for expansions are required, the twinning is not a suitable instrument to do this.

Conclusion:
Full support of top management is crucial for the success of twinning. This applies particularly for top management of the PDAMs. They will have to support and enable follow-up of the newly acquired experiences and know-how of their staff.

Recommendation:
Using the advantages of the Bapak Angkat approach deserves serious consideration. Selection of twinning partners should then be adapted accordingly.

Recommendation:
Bapak Angkat should be focused on partners that are geographically close in order to limit costs and maximize the potential for transfer of know-how and skills.

Conclusion:
GON is considering to bring twinning under normal bilateral development cooperation between Indonesia and the Netherlands, the so-called cash ceiling.
This will highly complicate the formal procedures for approval and execution. It may be detrimental to maintaining the interest of Dutch enterprises to start twinning at all.
Furthermore, twinning is a rather specific mode of development cooperation in that it is based on a process approach with an undetermined duration.

Recommendation:
Don't put twinning in cash ceiling.

Conclusion:
Twinning in its present form has limited value as a means to broaden public support in the Netherlands for development cooperation by public education. A number of employees of water supply companies actively involved in twinning has achieved greater awareness about third world issues. Water supply companies generally do not feel responsible for public education and awareness raising, which they also consider beyond their capacities.
Only when liaisons are established with complementary organisations (i.e. organisations with expertise in public education and awareness raising) can twinning activities provide relevant and interesting starting points for public education. (See section 4.6 for more detailed conclusions.)

Recommendation:
Water supply companies should seek more cooperation with organisations and networks oriented on public education on third world issues, such as COS or municipal working groups. Such cooperation could provide the professional capacity on public education on third world issues. (See section 4.6.3 for more detailed recommendations.)

Recommendation:
Twinning relations should be started with a rather long term (around 10 years) in mind.
A twinning relation should end when the effectiveness decreases substantially and can not be expected to increase again in the near future.

6.8 Policy Issues

Conclusion:
The Netherlands development policy puts accents on alleviation of poverty, achievement of sustainable development, specifically in the environment, and improvement of the position of women. For water supply and sanitation projects in Indonesia, an accent is put on institutional strengthening; geographically, the focus is on West-Java, Aceh and the Maluku.
The priorities from GOI are in the continuation of physical development, human resource development, operations and maintenance, and poverty alleviation.
Twinning has only a limited impact in these fields.

Recommendation:
Continuous attention to poverty alleviation is called for. Although no specific expertise regarding poverty alleviation can be offered by Dutch enterprises, DGIS may demand that they promote that improved performance of the PDAMs is positively contributing to cross-subsidies on social tariffs and public taps. Also the construction and maintenance of public taps, group taps and water terminals should be a point of attention in each twinning.

Recommendation:
From the point of view of efficiency, priority should be given to the selection of a strong Indonesian twinning partner, rather than to abide to the current geographical concentration of the Netherlands development policy.

Conclusion:
Two levels are emerging in twinning: (i) from Dutch enterprises to bigger and stronger PDAMs ("Twinning") and (ii) from these PDAMs to smaller and weaker PDAMs in the region ("Bapak Angkat" or "Godfather"). It is proposed by PERPAMSI to adapt the selection of twinning partners to this new pattern. At the start of the twinning, the selected PDAM may not yet be an optimum partner for Bapak Angkat. Bapak Angkat should start once the PDAM has become a strong enterprise.
It should be remarked that bigger PDAMs are not necessarily performing better than small PDAMs.

Recommendation:
Comprehensive reporting in a standard format should take place once per year. These annual reports should cover general progress, the status of contracts and agreements with DGIS and between the partners, comparison with plan of action, the plan of action for the coming year, a financial review, and other relevant information for assessing effectiveness and efficiency of the twinning arrangement. This report should be a joint report of both partners.
For each mission carried out, a brief report should be made. Such mission report should cover the main tasks carried out, bottlenecks encountered and follow-up actions proposed.

Recommendation:
In the twinning contracts with DGIS, reporting requirements should cover the "joint annual report" as mentioned above. The contract should be in English.

6.10 Making Use of Other Experiences and Tools

Conclusion:
Existing materials that could easily be used in twinning activities tend to be neglected. It may partly be a question of a lack of information, or inaccessibility of the materials.
As a result, other ad-hoc training materials are developed, or Dutch materials are translated. In some cases, the result is not appropriate.

Recommendation:
Use existing and proven materials to a larger extent.

Conclusion:
In Indonesia, other instruments exist to support PDAM, such as PMDU's. These PMDU's, however, have not really established themselves outside East-Java.
Although twinning provides inputs that could be compared with those of a PMDU, no link has been developed.

Recommendation:
Consider a coalition between twinning and the PMDU in the region, where the PMDU may be able to provide certain additional inputs to twinning. It could also be considered to delegate to the PMDU the task of continuous monitoring, a job currently carried out by a permanent representative of the Dutch partner in some cases.

6.9 Professionalization

Conclusion:
Whenever Dutch staff is sent to Indonesia for the first time, they start at a basic level and lack specific expertise of professional development cooperation. Although this is a disadvantage regarding the efficiency of twinning, it is impossible to approach twinning in a substantially different way. However, optimization may be called for.
Similarly, training within twinning is provided by staff whose main expertise is in operational or technical fields. Obviously, they can not be expected to be professional trainers. Nevertheless, the process of transfer of know-how can be improved.

Recommendation:
Optimize professionalization within the limits of using "ordinary" Dutch staff for transfer of knowledge. As already in many cases, it is advisable to send teams of at least two staff, of which one has paid an earlier visit to the PDAM. Repeat visits as such are recommendable and would be logically following "sandwich" arrangements.

Recommendation:
Substantial efforts are required regarding language skills, mainly in Bahasa Indonesia, but certainly also in English.

Recommendation:
Where relevant, provide Dutch staff on mission to Indonesia with elementary didactical skills that would facilitate the process of transfer of skills.

Recommendation:
Make use of HRDP materials when preparing for a (training) mission in the Netherlands already.

Conclusion:
No joint reporting regarding the twinning is currently carried out, only regarding the plans of action both partners produce a joint document. As a result, at least the Dutch reports tend to have a bias towards their own point of view.
Most reports are fairly inadequate regarding structure, use of language, and the like.

APPENDICES

6.11 Increasing the Application of Twinning

Conclusion:
The number of Dutch water supply enterprises will be reduced to about 20 in the near future. Given the fact that on average each enterprise can handle a maximum of two twinning relations simultaneously, the sector may be able to support a total number of about 40 twinning relations world-wide as a maximum.

Recommendation:
Given the limitation of the Dutch water supply sector, new twinning relations should carefully selected in order to make maximum use of its potential.

Conclusion:
Increasing the number of Dutch organisations involved in twinning is a way to augment public awareness in the Netherlands, particularly amongst the staff of these companies. Since the number of water supply enterprises in the Netherlands is limited, other sectors would have to be engaged. The main constraint for this option is in efficiency.

Recommendation:
In case a substantial growth of the number of twinning relations would be desired, sectors other than water supply should be engaged, most likely (semi-)governmental too. Attention is to be given to the problem of efficiency.

6.12 Miscellaneous Points

Conclusion:
Frequent transfers of staff within the PDAMs were noticed by their Dutch twinning partners. This is common to the Indonesian system and the skills acquired through twinning may be useful in the new positions as well. However, the twinning relationship clearly depends on both a good personal contact between top management of both partners, and on a (slow) process of change. Both conditions can be seriously affected by changes of staff at higher levels.

Recommendation:
PDAMs should try to reduce transfers of trained staff to what is really necessary, and at least inform their twinning partners well in advance of transfers of key staff.

APPENDIX 1

TERMS OF REFERENCE

Proposal for set-up and methodology of an

EVALUATION OF TWINNING RELATIONS BETWEEN DUTCH AND INDONESIAN WATER COMPANIES

Matrix Consultants 14 March 1991

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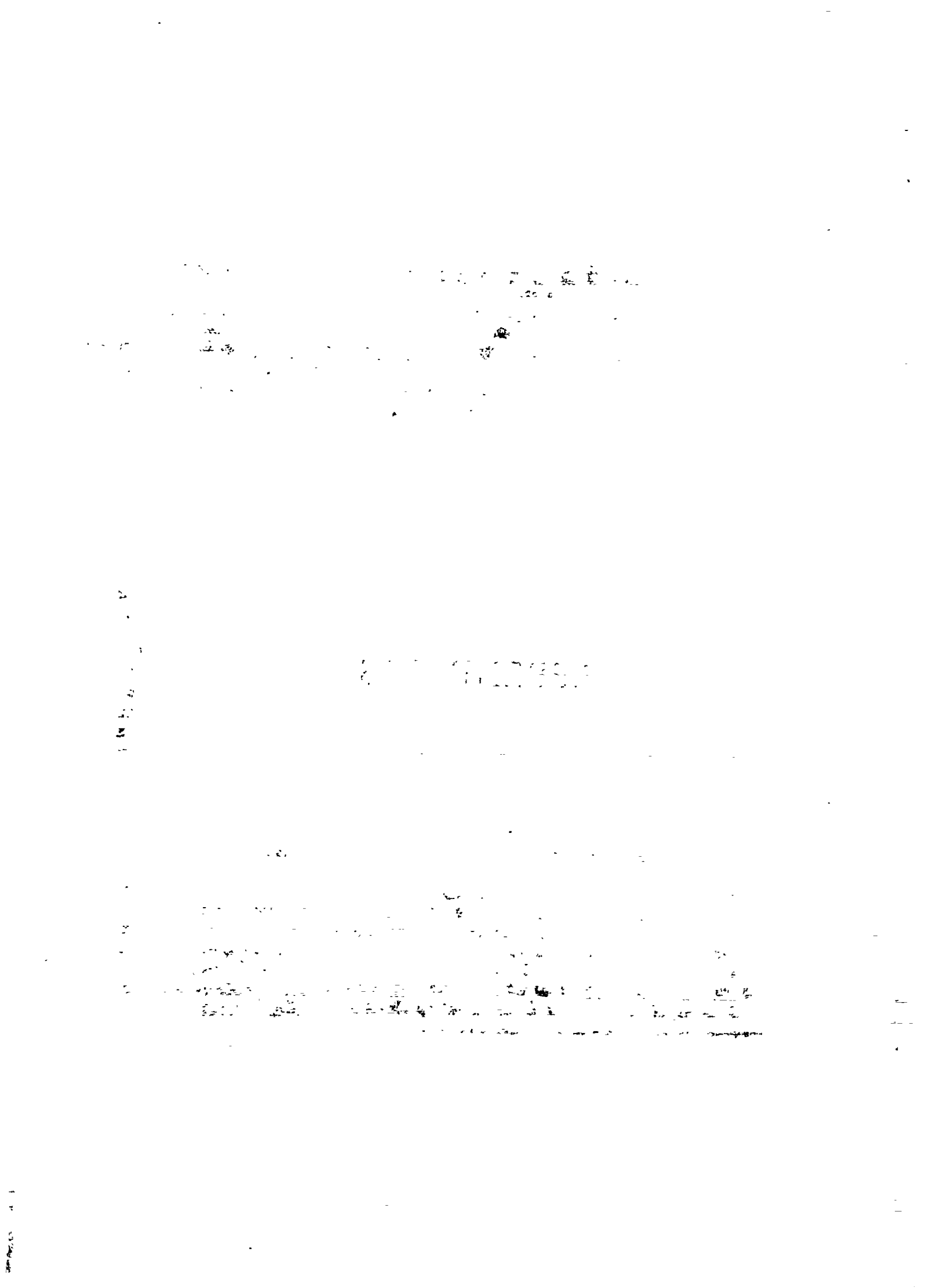
1. Introduction

The Directorate General for International Cooperation (DGIS) of the Netherlands Government wishes to carry out an evaluation of the twinning relations between Dutch and Indonesian Water Companies.
The programme has not been evaluated before, and in view of the value attached to this instrument of Development Cooperation, it is desirable to draw the lessons of experience and to see whether and how it could be strengthened.
Furthermore, both the Netherlands and the Indonesian Governments have expressed their intention to include the twinning links in the regular bilateral cooperation and thus under the cash ceiling. For this purpose, it is necessary to assess the effectiveness and efficiency of the instrument of twinning.

2. Background

Twinning as an instrument for development cooperation is rather new. The idea of twinning originates in the early 1980's. The initiative for establishing twinning relations was taken by the companies in Indonesia. From the Indonesian side it was considered useful to be able to tap from the operational experience of Water Companies in the Netherlands.
From the point of view of the donor, twinning was considered a very useful follow up in the field of institutional strengthening for projects under Dutch Bilateral Cooperation involved in construction of new water supply systems. In such projects and over the years, several hundreds of millions Dutch guilders of aid funds has been invested.
Furthermore, the donor considers twinning an important means to broaden the basis of public support for Development Cooperation in the Netherlands.



4. Parties involved

The actors involved in twinning in the water supply sector are:
1. Dutch and Indonesian Water Companies;
2. VEWIN and Perpamsi, the Associations of Water Companies in the Netherlands and Indonesia respectively;
3. The Government of the Netherlands (GON) as a donor through DGIS;
4. The Government of Indonesia (GOI) in an executive role through the Ministry of Home Affairs and the Ministry of Public Works. In the future, the Ministry of Planning will be involved as counterpart to DGIS.

During the course of evaluation, all parties involved will be consulted.

5. Points of attention

The following points are suggested as elements in the evaluation:
1. Investigate the contractual arrangements, the work-programmes, budgets and expenditures on twinning activities;
2. Mutual expectations;
3. Institutional and operational targets in the twinning relations;
4. Areas of collaboration: twinning strategy and types of activities undertaken (annex 1 refers);
5. Effectiveness of twinning activities;
6. Comparative advantages and cost effectiveness of twinning in the wider context of "instruments of development cooperation";
7. Future options for twinning, also in other sectors;
8. Role of GON and GOI in future twinning projects (selection criteria, funding, organization). Provide also a basis for standardization and professionalization that would, amongst others, reduce the relatively high administrative workload at DGIS and the other parties;
9. Effectiveness and quality of twinning as a means to broaden public support for Development Cooperation in the Netherlands.
10. Develop criteria that can be used to measure the success of twinningprogrammes
11. Twinning as part of an urban poverty allevation strategy, aimed at the provision of services to the poorest segments of society.

6. Approach to the evaluation process

A three step approach is recommended to allow proper discussions on the methodology of evaluation, to carry out part of the evaluation in the Netherlands, and part in Indonesia. The three steps are structured as follows:

Step 1. Consultation with all parties involved.
A first proposal has been discussed in Indonesia on the occasion of a PERPAMSI seminar in Jogyakarta. General agreement with the terms of reference was expressed to Mr. Martijn, Director of VEWIN. The ToR will be forwarded to VEWIN (and through them to the water companies).

At this moment there are seven twinning arrangements between Dutch and Indonesian Water Companies:

a. Rotterdam	-	Bandung (city);
b. PWN Noord-Holland	-	Bogor;
c. Friesland	-	Palembang;
d. West-Brabant	-	Balikpapan;
e. Gelderland	-	Medan;
f. Zeeland	-	Bandung (Kabupaten);
g. Gouda	-	Sukabumi.

A project between Cirebon and the Provincial Water Supply Company of Groningen will start soon.
A coordinating role for the twinning activities is played by the Associations of Water Companies VEWIN (Netherlands) and Perpamsi (Indonesia).

The twinning projects are generally aimed at institutional strengthening of the Indonesian Water Company, through establishment of a balanced relationship with a comparable (e.g. in size, production methods, product/service) organization in the Netherlands. The objectives, together with concrete plans of activities and conditions, are laid down in official twinning agreements.

DGIS supports the twinning relations under the condition that both companies would invest money and time in the activities undertaken. The DGIS contribution generally covers the costs of travel and subsistence, which is usually a small proportion of the total costs involved.

3. Objective of evaluation

Since twinning is a relatively new instrument for development cooperation, it started off without much knowledge on how to structure it. The concept was worked out in practice in mutual consultation between the parties. The seven existing twinning relations turn out to be varying in objectives and type of activities undertaken. Purpose of the evaluation is to

- investigate the experiences obtained so far;
- assess whether objectives and expectations on both sides were met;
- establish the measures that would enforce the twinning instrument in the future in terms of quantity and quality;
- determine the value of twinning as a means to enhance public interest in Development Cooperation.

8. Time schedule

Step 1 has been carried out in January 1991.

Step 2 will be carried out from March 18 till April 17.

The field visits of step 3 will be conducted from April 22 to May 11, 1991. During the last days of this visit, debriefing to the Netherlands Embassy and the GOI will take place. The Indonesian consultants will be requested to prepare the schedule for travel and interviews with the Indonesian companies and officials.
A draft final report will be submitted to all relevant parties prior to a joint discussion with VEWIN and PERPAMSI, which is scheduled for 23 and 24 May, after which the final report will be edited.

Step 2. Evaluation and data collection in The Netherlands.
All Dutch companies involved will be interviewed and relevant information will be collected (annex 3 refers).
Simultaneously, the value of twinning to spur public awareness of Development Cooperation is to be assessed. Data regarding the intensity, effectiveness and quality of this effect of "public education" will be sampled (see annex 2).
Finally, relevant literature on twinning in the water sector will be investigated.
Step 2 will be concluded with an interim report to be used as input to step 3.

Step 3. Evaluation and data collection in Indonesia, final reporting.
During the joint evaluation, a short report per twinning relation will be written on performance criteria and effects of twinning. Each company will be invited to comment on the report. On the basis of these studies, a synthesis report will be compiled. The report will analyze the results obtained sofar and will suggest the future course to follow. More specific questions to be dealt with are listed in annex 3.
Prior to departure to The Netherlands, the mission will prepare a debriefing statement that summarizes the main findings, conclusions and recommendations. On this basis the final version of the report will be compiled. During the VEWIN-PERPAMSI meeting of 23 and 24 May 1991, the conclusions and recommendations will be presented for joint discussion.

7. Team composition

The following team composition is proposed:

Mr. J. van Luijk:	Expert on institutional development and business economics and management (Matrix Consultants, Utrecht)
Mr. A.R. Manuel:	Expert on water supply systems and organization (M-Consult, Woerden)
Indonesian member	Consultant, expert on enterprise development / institution development (to be named)
Indonesian member	Consultant, Expert on urban water supply (to be named)

Annex 2

ISSUES FOR SPECIFIC STUDY IN THE NETHERLANDS

Specific issues to be investigated in The Netherlands that refer to the public awareness regarding Development Cooperation raised within the twinning relationships are:

a. What objectives were formulated by the Water Companies regarding public awareness and education?
b. What activities on extension and information dissemination have been undertaken (including company public relation activities)? How large was the effort in terms of time and money?
c. Who have been reached with these activities (what kind of groups or organizations)?
d. What were the main messages communicated?
e. Is there any indication of results (e.g. establishment of local groups, affiliation to specialized NGO's, subscription to Third World magazines, school projects, fund raising activities, etc)?
f. Did the Water Company consult other organizations active in these kind of activities, such as the local and regional Centres for Development Cooperation COS, NGO's, etc.?

Annex 1

POSSIBLE FUNCTIONS OF TWINNING:

1. **Organization/institution development:** Advice on organization structure, procedures, development of manuals, policy development, operational guidelines etc.
2. **Strengthening management:** Management counselling, workshops, seminars, planning methods, work visits to the Netherlands.
3. **Supporting measures for institutional development:** administration systems, accounting, electronic data processing.
4. **Staff training:** on-the-job and technical (ie. subject matter) training events, on the job exchange of skills by staff in similar functions.
5. **Consultancy:** technical advisory assignments, studies for well defined problems.
6. **Business culture impact:** Sharing of management approaches, consultation and exposure to business management approaches (e.g. through participation in the other party's organisation for some time), sharing of attitude and approach at operational levels.
7. **Supporting services:** Any service that supports operations of the Indonesian twinning partner.
8. **Execution and contracting work:** functions in operations, maintenance, rehabilitation and new construction in which the Dutch party takes up responsibility for implementation and/or Dutch employees fulfil in-line positions.

Functions of twinning for the donor;

9. **Raising awareness** and **public support** for Development Cooperation through local private initiatives in the Netherlands ('draagvlak vergroten').
10. **Follow up** in the field of institution development on Dutch Bilateral Development Assistance Projects, to ensure effective and sustainable operations.
11. Follow-up in the Dutch Development Cooperation Programme with Dutch local authorities, ic. het Programma Uitzending Gemeente Ambtenaren en het stage programma.

* Have objectives for twinning been distinguished from objectives for the Indonesian Water Company? If not, is it possible to define in retrospect what was expected from the Dutch twinning partner, and what from the Indonesian?
* What are considered to be the major achievements of twinning? Can objectively verifiable indicators be given (eg. reduced time spent on block rehabilitation, number of advices successfully implemented, reduction of water losses, increase in billing efficiency, increase in revenues, increase in service hours etc.)?
* What is perceived by the Indonesian and the Dutch parties to be the particular advantages and usefulness of twinning?
* What are its limitations and constraints encountered? How were they overcome? What type of activities could better have been undertaken differently?
* Do ideas exist with respect to possibilities to improve effectiveness of twinning?
* What is the scope and effect of twinning in the sector as a whole?

Annex 3

SOME FACTUAL AND QUALITATIVE QUESTIONS TO BE ADDRESSED

Below a number of questions are listed that need to be answered during the evaluation process, both in The Netherlands and in Indonesia. Some additional questions may have to be answered specifically for each of the functions distinguished in Annex 1. The list is not limitative.

Factual information to be collected from each twinning relation:

* A brief 'profile' of each of the companies including:
  - Size: area covered, number of connections, production capacity (l/sec), number of staff;
  - Type of water sources, type of treatment system;
  - Recent expansion and rehabilitation projects undertaken;
  - Future plans for expansion and rehabilitation projects.
* Type and size of Dutch bilateral support received by Indonesian partner prior to twinning (e.g. construction projects with Dutch consultants). Which problems were experienced upon completion of these new installations? Was twinning useful to solve these problems?
* Short history of the twinning relationship (when and why was it started, how did it develop?).
* Description of the activities to be carried out under the twinning contract and what has actually been done. Classify according to the eight functions of twinning described in Annex 1.

Qualitative issues:

* Are supportive activities based upon an analysis of the company-operations as a whole, or are they determined on ad hoc basis?
* Has there been a problem analysis prior to planning of activities? What are the core problems being addressed?
* How successful/useful was the twinning relation in dealing with these problems? What approach has been adopted to deal with them?
* Are support activities within the twinning relation based upon a detailed plan ('blue print approach') or are they planned according to experience gathered (process approach)?
* Are these actions to be seen as 'investments' in local capacity (and hence round off once the capacity is established) or are they of a recurrent nature (and if so, can they become sustainable?).
* Is there a well-defined time horizon to the activities undertaken (in other words: is it clear when the support activity is fully completed and no longer needed)?
* What are the objectives? What was envisaged to be the 'end-of-project' status (i.e. what was expected to be achieved by the end of the present twinning contract)?
* What was expected from twinning? Was that expectation met in practice?

4. **Afwerking:** Er wordt voorzien dat elk der Nederlandse consultants zeker 5 dagen nodig zal hebben voor de (deels gezamenlijke, deels individuele) nagesprekken met de Nederlandse bedrijven over het eindrapport per twinningsrelatie (1/2 dag per bedrijf) en de finale redactie van deze deelrapporten (1/2 dag per bedrijf). Nog eens 5 dagen worden voorzien voor het samenstellen van het synthese rapport, het presenteren van de bevindingen op de VEWIN-PERPAMSI vergadering en de debriefing bij DGIS.

5. Voor het onderzoek in Indonesië zijn ervaren Indonesische consultants vereist met een goede reputatie. Daarom wordt uitgegaan van een fee van $ 1.000,- per week.

6. Voor Matrix Consultants en M-Consult zullen aparte contracten worden opgesteld. Voor het inhuren van de Indonesische consultants zal Matrix zorgdragen.

7. Aangezien een zeer aanmerkelijk deel van het werk in Nederland wordt uitgevoerd en daardoor de reiskosten ruim hoger zullen uitvallen dan hetgeen normaliter als onderdeel van de tariefafspraken mag worden beschouwd, zijn in de begrotingen kosten voor reizen in Nederland opgenomen.

Annex 4

Toelichting bij de concept begroting:

1. **Stap 1:** De heer Martijn van de VEWIN zal per fax worden verzocht om het voorstel te presenteren tijdens een VEWIN/PERPAMSI vergadering in Indonesië, om zodoende tot overeenkomst te komen met de Indonesische waterleidingbedrijven over de methodologie en T.o.R. In deze opzet wordt stap 1 zonder kosten uitgevoerd.

2. **Stap 2:** Voor voorbereiding zijn 10 dagen opgenomen, verdeeld als volgt:
   - 1 dag voor opstellen en bespreken van aanpak (onderling, met DGIS en met een der Nederlandse bedrijven) en voor het opstellen van een ToR voor Indonesische consultants;
   - 2 dagen voor doornemen documentatie bij DGIS en van de betrokken bedrijven, alsmede internationale literatuur over twinning afchecken;
   - 3 gezamenlijke bezoeken en elk der consultants 2 individuele interviews (ieder dus 5 dagen) zodat alle 7 waterleidingbedrijven in Nederland worden benaderd;
     Zowel Van Luijk als Manuel zullen de Nederlandse waterleiding-bedrijven bezoeken om informatie te verkrijgen over de invulling van twinningsrelatie. Het volstaat niet om slechts één bedrijf te bezoeken, aangezien reeds is gebleken dat er grote verschillen bestaan tussen de zes twinning relaties.
   - 2 dagen tussenrapportage.

   Ten behoeve van het inventariseren en evalueren van de voorlichtings- en bewustwordingseffecten zal Mevr. L van Winden 7 dagen besteden voor een bezoek aan elk van de bedrijven. Daarnaast zal zij in totaal 2 dagen besteden aan bezoeken van een aantal van de bij Ontwikkelings-samenwerking in de betreffende regio's betrokken organisaties. Ter voorbereiding en rapportage zullen haar 2 dagen ter beschikking staan.

3. **Stap 3:** Beide Nederlandse missieleden zullen 21 dagen in Indonesië verblijven om de evaluatie uit te voeren, tezamen met de Indonesische consultants (inclusief 2 dagen voor de vliegreis heen en terug geeft dit 23 werkdagen op kalender-basis). Voorzien wordt dat twee teams worden gevormd bestaande uit een Nederlands en een Indonesisch consultant, die elk drie of vier bedrijven bezoeken (4-5 dagen per bedrijf inclusief reistijd). Per bedrijf zal een deel-rapport worden samengesteld, dat nog ter plaatse met de lokale bedrijfsleiding zal worden besproken. Hierop volgend komt het team in Jakarta weer bijeen voor het bespreken van de resultaten en de hoofdpunten van evaluatie (annex 2 voorstel). Voorts moeten gesprekken worden gevoerd met PERPAMSI, Dalam Negeri, Cipta Karya en mogelijk enige andere donoren met twinning ervaring.

APPENDIX 2

ITINERARY

4 March 1991	Start-up meeting at DGIS.
5-25 March	Preparatory activities.
25 March -17 April	Meetings with the 7 Dutch companies, VEWIN, DHV and Iwaco.
18 April	Reporting of first findings to DGIS.
22 April	**Start of activities in Indonesia.** Meetings at the Netherlands Embassy, Waseco Tirta and Iwaco.
22-23 April	Updating Indonesian team members and preparations for field visits.
24-27 April	Visits to Bogor, Kabupaten Bandung and Sukabumi.
27-28 April	Evaluation of first findings in Jakarta.
29 April - 4 May	Visits to Balikpapan, Kotamadya Bandung, Medan and Palembang.
6-8 May	Preparing report of preliminary findings and draft Twinning Relation Reports. Meetings with Bappenas, Cipta Karya and PERPAMSI.
8 May	**End of activities in Indonesia.**
21 May	Reporting to DGIS
22 and 23 May	Presentation and discussion of preliminary findings at VEWIN-PERPAMSI meeting in Amsterdam. Submission of draft Twinning Relation Reports to the twinning partners
27 May - 24 June	Preparation of draft final report.
25 June	Submission of draft final report to DGIS, VEWIN and PERPAMSI.
27 June	Discussion of draft final report with DGIS.
July / August	Comments by various parties.
4 September	Submission of final report to DGIS, VEWIN, PERPAMSI and twinning partners.

APPENDIX 3

LIST OF PERSONS MET

Indonesian Government:	
Mr Hinu Sutihardjo	Bappenas, Head Bureau of Foreign Economic Cooperation, Directorate of Investment Funds
Mrs Leila	Bappenas, staff Bureau of Foreign Economic Cooperation
Mr Freddy H. Tulung	Bappenas, Head Bureau of Social Welfare and Public Housing
Sahat Pandjaitan S.E.	Ministry of Home Affairs, also Secretary General of PERPAMSI
Ir. Sunaryono Danoedjo	Director General of Human Settlements (Cipta Karya), Ministry of Public Works
Ir. Priyono Salim	Head of Sub-directorate of Foreign Aid Administration, Bina Program, Cipta Karya
Ir. H. Tri Harsono	Sub-directorate for Technical Development, Directorate of Water Supply, Cipta Karya
Bambang Purwanto M.Sc.	Sub-directorate for Technical Development, Directorate of Water Supply, Cipta Karya
Royal Netherlands Embassy Jakarta:	
Drs. J. Schellaars	First Secretary
VEWIN:	
Ir. Th.G. Martijn	Director
PERPAMSI:	
Drs. Supraptono	Chairman
WLF:	
Ir. J. van Winkelen	Managing Director
S. Procee	Twinning coordinator, Head of Distribution
D.J. van der Geest	Head water meter repair
S. van Houten	Fitter
H.B. Kasma	Head of a District
T.J.I. Rutgers	Head exploitation
J. Zondervan	Head process and electrical works

in Bandung	
Dedi Suryadi	PMDU
Tatang	PMDU
Ir. S. Jarigsma	Representative of DHV
Delta:	
Ir. P. Stoter	Director
L. Back	Fitter
Ir. C.J. van Es	Head Technique
Ing. C.E. van Gremberghe	Head Exploitation Water Production
J. Morel	Production
Ir. H. Rakers	Technical Director (retired)
G. van Rossum	Head PR/permanent representative Bandung
D. Stevense	Supervisor Distribution
A. Weemaes	Production
Sj. van Weggen	Water production
J. Zuurmond	Head Distribution
PDAM Kabupaten Bandung:	
Ir. Achmad Setjadipradja	Director
Daholi	
Drs. Djauhari	
Ruddy Kusmayadi	Cimahi branch
Herman Kusna	Head Distribution Region III
Christian Parera	Head Production
Puji	
Ridwan	Head techn. dpt, Cimahi Branch
Sudamoto	Head Lembang Branch
Titi	Head Planning
Wawan	
PWN:	
Dr. C. Spreij	Director
Ing. L.J. Geldof	Head of District
PDAM Kotamadya Bogor:	
Ir. Indra M. Roesli	Technical Director
Dra. Betty Hariaty	Head Public Relations Team
Reny Sumartini	Computer department
Henry Darwin	Staff technical planning
Defi Sudjiana	Staff technical planning
Komala Nurchahya SH	Customer Relations
in Bogor:	
A.J.A. Kramer	Permanent representative PWN

PDAM Tirta Musi Palembang:	
Ir. Yahya Nanang	President Director
Ir. Amir Indra Wikana Thoba	Technical Director
Drs. Syamsul Bahri	Administrative Director
Taswin Denmas	Twinning coordinator, Head research and development
Bawuk Yulianto	Laboratory Rambutan plant
Faisal	Installation of water meters
Piet Hannibals	Ex-fitter, interpreter
Anwar Nangya	Distribution department
Sumzon	Supervisor pipe laying
Hasym Hassan	Head of store
Hasan Mendur	Head distribution
Stefanus	Design department
Edy Rasidi	Laboratory 3-Ilir plant
Nasaruddin	Distribution department
Ir. Ida Satriani	Research and development department
in Palembang:	
D. Scheepstra	Head transport mains division WLF
Bob Macintosh	Consultant Bogor/Palembang IUIDP project
DWL Rotterdam:	
Ing. J.A. Verheijden	Managing Director
A. den Drijver	
G.K. van Ekeren	Production (retired)
P. Kinsky	Distribution
Ir. R.J. Kolpa	Technical Bureau Production
Drs. Y. Plokker	
R. Post	
A. Radder	
P. Roomer	
PDAM Kotamadya Bandung:	
Ir. Ibrahim Suriamihardja	Director
Ir. Yulianto	Head technical equipment
Ir. Syani Djuwandi	Finance Division, computer
Riona Djaja	Finance Division, programme analysis
Toyalis G. Permana	Water Supply Division, deep wells
Dra. Yati Sudirman	
Eddy Garmadi	Distribution
Drs. Rudi Irawan	Technical Division
Yernady	

PDAM Sukabumi:	
Ir. Hafil Widianto	Director PDAM Sukabumi
Ir. Fifi Kusumajaya	Twinning coordinator PDAM Sukabumi
in Sukabumi:	
Ing. R. van Kerkvoorden	Representative DHV
Consultants:	
Ir. N.A. Amesz	Director Iwaco
Ing. P.P.M. Oostdam	Project Director Iwaco
Ir. J. Oomen	DHV Consultants

WMG:	
Ir. P.W. Langendijk	Director
Ing. H.B. Barmentloo	Coordinator Twinning and Head of a District
P.J.M. Boeijen	Distribution
P. te Dorsthorst	Production
J.P. Raayman	Production
A.J. de Vries	Head of a sub-district
PDAM Tirtanadi Medan:	
Drs. Ihutan Ritonga	President Director
Ir. Kumala Siregar	Technical Director and Manager PMDU Unit Province of North Sumatra
Rochmein Nasution	Twinning coordinator and Research and Development
Ir. Sugeng Hadi Sungkono	Head of Production Department
Harahap A. Syariff	Manager sewerage project
Djunadi Siregar	Electronic Data Processing
Edy Misnan	Water meter reading
Ir. Yusmansyah	Distribution
WNWB:	
Ir. G. Zoet	Deputy Managing Director
J.C. Moerland	Production
H. Reulen	Distribution
PDAM Balikpapan:	
Djamaluddin, BE	Director
Dadang	Distribution
Firmansyah	Production
Gufran	Production
Rachmad	Planning
Ratna Shelly	Intake
Sumarni	Maintenance
Drs. R.M. Sumbono	Head personnel department
Surmoni	
in Balikpapan	
F.A.P. Houtepen	WNWB
Oomen	
WZHO:	
Ing. B.J. Hofhuis	former Director
Ing. R. Pin	Twinning coordinator

APPENDIX 4

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APPENDIX 5

GLOSSARY

BNA	Basic Needs Approach
BPAM	Badan Pengawas Air Minum, water supply board
COS	Centrum voor Ontwikkelingssamenwerking, Dutch regional centre for education on third world issues
Delta	Delta Nutsbedrijven, formerly Watermaatschappij Zuid-West Nederland
Dfl	Dutch Guilder
DGIS	Directorate General for International Cooperation of the Ministry of Foreign Affairs, the Netherlands
DWL	Drinkwaterleiding Rotterdam
GOI	Government of Indonesia
GON	Government of the Netherlands
HRDP	Human Resources Development Project
IKK	Ibu Kota Kecamatan, capital of a district
ISSP	In Service Support Programme
Kabupaten	Regency
KIT	Koninklijk Instituut voor de Tropen, Royal Tropical Institute, Amsterdam
KIWA	Keuringsinstituut voor Waterleidingartikelen
Kotamadya	Capital city
lcd	litres per capita per day
PERPAMSI	Association of water supply companies in Indonesia
PDAM	Perusahaan Dearah Air Minum, local water supply company
PMDU	Project Monitoring and Development Unit
PR	Public relations
PWN	PWN Waterleidingbedrijf Noord-Holland
SNV	Stichting Nederlandse Vijwilligers
STD	Sub directorate for Technical Development of Cipta Karya
Tingkat-I	First level of local government: Province
Tingkat-II	Second level of local government: Kotamadya or Kabupaten
uaf	unaccounted-for water, difference between water produced and water billed, expressed as percentage of water produced.
VEWIN	Association of water supply companies in the Netherlands
WLF	Waterleiding Friesland
WMG	Waterleiding Maatschappij Gelderland
WNWB	Waterleidingmaatschappij Noord-West Brabant
WZHO	Watermaatschappij Zuid-Holland Oost

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APPENDICES

RATES OF EXCHANGE

1 US$ = Rp 2,000
1 US$ = Dfl 2.00
1 Dfl = Rp 1,000

The 7 Twinning Relation Reports are included in Volume 2