4. REGIONAL WORK PROGRAMME, 1995

4.1 Programming of Activities

The strategy outlined in section 3.3, comprising the guidelines for further project activities and principles for implementation, have formed the basis for preparing the programme of activities for the individual countries.

In accordance with the decision made at the 4th Steering Committee Meeting held in December 1994, detailed planning of activities in each country have been undertaken by the Consultants in close cooperation with the Counterparts during a one month period from mid January to mid February 1995, spending about one week in each country.

In each country, the planning has comprised a review of the present status of the project regarding the national institutional framework, counterpart staff resources including new candidates, hardware and software installations, the principal case study and new applications planned. On this basis, specific targets for 1995 have been agreed upon, and associated activities discussed and defined, which has been summarized in a Work Programme specific to each country.

The results of the above activity has for each country been reported in a "Plan of Activities for 1995", which are included as Appendix B-G to the present document.

A coordination and synthesis of the individual country programmes have subsequently been prepared to develop an overall regional programme, which is described in the following sections.

4.2 Main Components

In spite of the differences between the work programmes established for the individual countries, the main components are identical, allowing a coherent regional programme to be prepared. In this section, the components of the regional programme is described, providing an outline of the principal content of each component (please also refer to Table 4.1 included at the end of this Chapter). For further details, including a breakdown and description of activities for each country, reference is made to Appendix B-G.

Case Study Applications

In all countries, the established model for the case study area requires further calibration before it can be applied for actual applications. In general, it has been aimed at finalising the calibrations around the middle of the year to enable applications to be initiated during the second half of 1995. Planned applications differs according to the problems experienced, and includes a range of investigations related to flood hazards, flood control, reservoir operation, as well as

experimental and operational testing of flood forecasting/warning systems.

The trained counterparts will have the primary responsibility for advancing the case studies, but will be supported by the Consultant for solving technical problems.

Applications to New Areas

In a few countries, setup of the model for new areas in addition to the case study has already been initiated. All countries have plans for applying the modelling system to other catchments, which is aimed at being started this year, often in conjunction with the in-house/national training courses (see below) for introducing the modelling system to other colleagues.

It is not expected that the application to new areas in general will reach very far this year, but primarily serve as a training means. New potential counterparts should preferable be given the responsibility for the new applications and be supported by the national counterparts. Support from the Consultant may also be provided in case technically difficult problems is experienced.

Training

The dissemination of the technology and know-how to other staff in the participating institutions will primarily occur via in-house/national courses and a regional course.

In-house/national courses. In some countries the dissemination of know-how to colleagues has already started, and additional software installations have been made to allow a more efficient training.

All countries have identified a large number of candidates (between 6 and 10) who may have the necessary background and interest to become actively involved in the project. A plan for the introduction of the new candidates to the modelling system have been established in each country. The format and extent of this introductory training varies considerably, however, ranging from personal ad-hoc instruction provided by the trained counterparts to a fixed 3 weeks national course with classes every day for 3 hours involving all participating institutions.

The trained counterparts will be responsible for the planning and execution of this introductory training of new candidates. Upon request, the Consultant may provide limited support, but will not be able to provide day-to-day assistance. The courses are planned to be held sometimes during May-June, at which time the Consultant will visit all countries, and among others undertake a brief review of the courses.

Regional Training Course. In order to introduce selected candidates further to the modelling system, a 4 weeks regional course will be held within the region in November 1995.

The objective of the course is to enable the participants to apply the MIKE 11 modelling system for fairly simple types of problems with no or only limited support. After the course,

participants are expected to be able to setup and calibrate the HBV and HD modules for simple cases, to assist in the operation of the system for flood forecasting purposes and having gained a general understanding of the capabilities and limitations of the model, including data requirements.

The regional course will comprise general lectures, specific computer exercises and on-the-job training in connection with the application of the model to particular cases, preferably the new study areas identified in the individual countries.

The course will be arranged for a maximum number of 24 participants from the region. All participants are required to have attended the in-house/national courses and hence have basic knowledge of the modelling system and its operation. The participants will be selected based on qualifications and the need for strengthening the institutional capacity in relation to the national programme. It is proposed to form a committee in each country, comprising the instructors of the national course, the National Representative and a representative from the Consultant, to be responsible for the final selection. The project will pay for the transport of all participants to course, and provide accommodation free of charge as well as a reasonable per-diem to cover subsistence costs.

The Consultant will be responsible for the overall planning and execution of the course. A number of the trained counterparts, however, will be requested to provide their assistance during the course. Counterparts are expected to conduct the majority of the lectures and provide support in connection with the computer exercises and the on-the-job training related to model applications.

Strengthening of Universities

In order to support the incorporation of mathematical modelling in university courses, thesis work and/or research programmes, relevant course material will be developed by the Consultant and forwarded to all participating universities for their review. The material will include proposals for course programmes and schedules, associated lecture notes, and examples of computer exercises.

Later in the year (adequate timing remains to be fixed, but probably around July - August 1995), one counterpart from each of the universities will gather together with a representative from the Consultant to review and discuss this material and exchange ideas, plans and experience regarding the introduction of mathematical modelling at the universities. The seminar will have a duration of one week and will result in the development of a specific plan for each of the universities. The project will pay for travel, accommodation and subsistence of the participants during the seminar.

Due to the differences among the universities, some having past experience and advanced plans for introducing mathematical modelling in courses already during the second half of the year, the Consultant will be available upon request for support during his visit to region in May - June.

Dissemination of Results

The dissemination of results to potential end-users will primarily occur during the annual Regional Workshop, at which occasion about three days will be spent providing overall information on the capabilities of the modelling system primarily exemplified through its applications to the case studies in all six countries.

The National Representatives is requested to prepare a list (institution and representative) of potential end-users from their country, which is expected to have a sincere interest in the type of investigations which may be undertaken by the model. This may typically include emergency organizations, but may also include organizations related to public works, agriculture, city planning or even representatives from other divisions of the participating institutions if deemed necessary. Representatives should in general be staff at the management level. The Consultant will review the recommendations, and make the final selection together with the National Representatives. The number of invited representatives will be limited to a total number of 18, ie. an average of three per country.

It is proposed also to invite the Executive Secretary, the Regional Coordinator and the National Representatives for this three day event.

The remainder of the workshop will focus on technical issues and project implementation in general for discussion between the 22 counterparts and the Consultants. This will include an elaboration and exchange of experience related to the modelling activities and identified problems related to modalities for project implementation. Individual country programmes for 1996 will also be drafted and discussed as well as a possible phase II of the project.

Proposal for Phase II

In order to allow the project to continue into a possible phase II without interruption, ie. from January 1997, it is necessary to initiate the preparation of the proposal already in 1995.

To allow all parties concerned to influence the proposal, the Consultant will initially prepare a draft/concept proposal based on the experience obtained from the implementation of the project in 1995, and the discussions with all counterparts at the Regional Workshop. The concept proposal will be drafted just after the Regional Workshop, hence in due time to be presented and discussed at the next Steering Committee Meeting scheduled for December. Based on the conclusion reached at this meeting, the final proposal will be prepared, and thus be ready for a possible Danida review and appraisal mission in February 1996.

At the time of preparing the present document, the final recommendation of the recent Danida Review Mission is not known. Irrespective of their recommendations, however, it is recommended to prepare the proposal to apply for financing from alternative sources, should it become necessary.

Reporting

In line with the adopted strategy for the Application and Consolidation phase, the national partners will be given a greater responsibility for preparing the reports necessary for monitoring the progress and achievements of the project. Below is given a list of the planned reports with responsibilities as indicated:

Brief National Progress Reports: One report for each country providing a brief description of the progress made in March and April, and main problems experienced. The report serves the purpose of briefing the Consultant on the problems to be addressed during his visit in May - June. To be prepared by the counterparts, National Coordinator responsible. Language: Spanish with English Summary. To be handed over to the Consultant. Deadline: 2nd week of May.

University Seminar Report: One report summarising the findings and recommendations of the seminar, including a plan for each country regarding the incorporation of mathematical modelling in university activities. To be prepared by the university counterparts, Regional Coordinator responsible. Language: Spanish with English Summary. To be forwarded to the National Representatives and the Consultant. Deadline: 2 weeks after the completion of the seminar.

1995 National Progress Reports: One report for each country providing a summary of completed activities, achievement of targets and main problems experienced during project implementation. The report shall serve the purpose of providing the Steering Committee with sufficient details on the status of the project in each country, and will form an annex to the Regional Progress Report. To be prepared by the counterparts, National Representative responsible. Language: Spanish with English summary. To be presented at the Regional Workshop and handed over to CEPREDENAC and the Consultant. Deadline: End of October.

Regional Progress Report: One report providing information on the general progress of the project within the region, achievement of overall targets, output produced and main problems experienced. The report shall serve the purpose of briefing the Steering Committee members on the overall status of the project within the region. To be prepared by the Consultant in cooperation with the Regional Coordinator. Language: English with Spanish summary. To be presented at the 6th Steering Committee meeting. Deadline: mid November.

Plan of Operation for 1996: The document shall present a detailed plan for project implementation in 1996 for the approval of the SC at its 6th Meeting. To be prepared by the Consultant in cooperation with the Executive Secretary. Language: English with Spanish summary. To be presented at the 6th SC meeting. Deadline for submission to SC members: one week before the meeting.

Draft proposal for Phase II: The document shall present a proposal at concept level for discussion at the 6th SC meeting. To be prepared by the Consultant. Language: English. Deadline for submission to SC members: one week before the meeting.

4.3 Schedule of Activities and Staff Inputs

The overall schedule for the implementation of the components described in the preceding section is shown in Table 4.1, which also provides an estimate of the required national inputs and from the Consultant.

The schedule and estimated staff inputs has been derived from the individual schedules prepared for each country, which are included in Appendix B-G. Reference is made to the appendices for more detailed information on the specific programme of activities in each country.

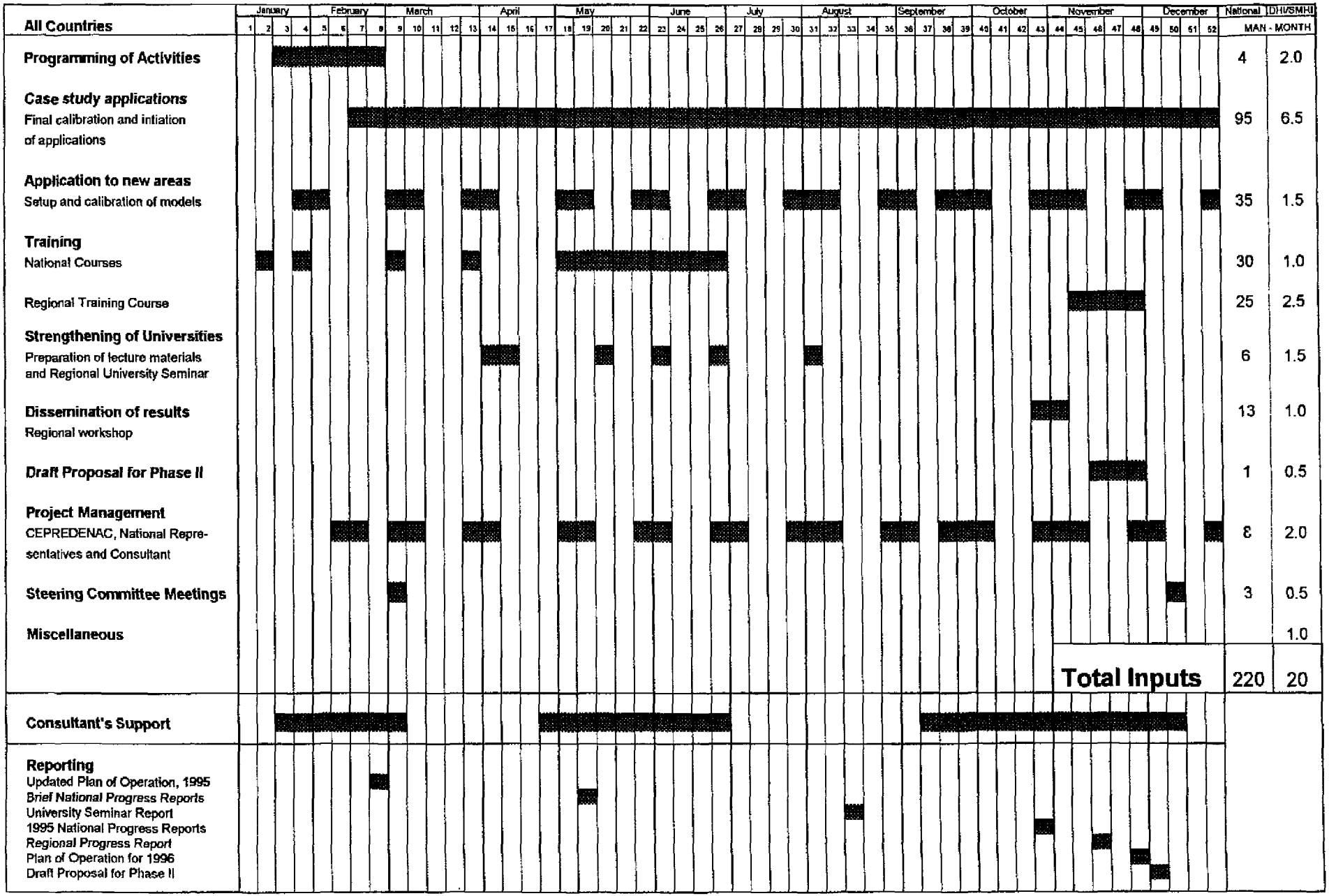
Estimated inputs from the region and the Consultant makes up a total of 220 and 20 man-months respectively. In comparison with the estimates given in the Plan of Operation No. 3, the updated estimate of national inputs is significantly higher. This increase (from 140 to 220 man-months) reflects the considerable number of new counterparts planned to be introduced to the technology by means of national and regional training programmes, and the initiation of applications to new areas. The 220 man-months input, corresponds to an average of 6 staff from each country spending some 50% of their time on the project, which appears realistic and necessary to complete the calibration of the models for the case study areas and initiate applications, and at the same time make adequate progress in the training of new staff.

A similar comparison for the Consultant's total input, shows an increase from about 18 man-months estimated in the 3rd Plan of Operation, to the 20 man-months allowed for in the present programme. In view of the comprehensive programme planned, this support does not appear unreasonable.

The overall programme is seen to concentrate efforts on advancing the case study applications and secondly on the training activities including the initiation of application to new areas which also supports the further dissemination of the know-how. Finally, the dissemination of results towards end-users and strengthening of the universities have received some attention. The priorities reflected in this programme appears in full agreement with the adopted strategy of the project.

The programme also appears to reflect a reasonable balance with respect to the Consultant's relative support to the various components. It may be feared, however, that the resources allocated to support the case study applications (corresponding to an average of only 4½ weeks per country) may show insufficient to provide adequate support for solving the technical problems which inevitably will arise as the work progresses. Considering the limited resources available, however, it has been difficult to increase this support without serious implications for other components. The experience obtained during 1995, will help to optimise the support from the consultant to the different components.

Table 4.1 Overall Activity Schedule and Staff Inputs



5. UPDATED PROJECT ECONOMY

5.1 Final Account of Expenditure for 1994

In Table 5.1, a *final account* of the expenditures for all budget items is shown, based on the actual invoicing to Danida. Actual expenses are shown in comparison with the budgeted expenses included in the Plan of Operation No. 2, which was approved at the 3rd Steering Committee Meeting in Tegucigalpa, February 1994. Figures shown in parentheses ( ), represent expenses less than budgeted.

An *estimate* of the final account was also included in the recent Plan of Operation No.3, presented at the Steering Committee meeting in December 1994. In comparison with this estimate, the total final account is some DKK 66,000 less than estimated. Deviations from the estimate for individual budget items are less than 10%, and hence comments given in the Plan of Operation No. 3 in relation to the deviations from the original budget is still valid.

The same obviously also applies to the total expenditures for the Inception and Training phases (1993-94), still showing a total of DKK 10.5 millions.

5.2 Updated Budget for 1995

A budget for the cost of implementing the proposed programme for 1995 is presented in Table 5.2. This Table also shows the actual expenditures in 1993-94, as well a tentative budget for 1996 to allow a comparison of total projected cost with the original budget.

In comparison with the *tentative budget* for 1995 approved by the Steering Committee at its last meeting, the updated budget shows the following main differences:

1. Consultant's Fees: The budget has been increased by 155,000 in order to accommodate the slight increase in the support from the Consultant. The main change is an internal redistribution of the allocated budget from SMHI to DHI.

2. Travels: A 10% increase in the budget (= 28,000) has been made, again reflecting the increased input.

3. Accommodation and per diem: Increased by 60,000 due to the same reason.

4. Regional Workshop: The budget has been significantly increased by 100,000. The increase is due to the changed scope of the workshop, both as regards the number of participants and content.

The Workshop has been designed to allow a presentation of the results of the project to potential end-users, and will furthermore be used to evaluate and discuss project

implementation in 1995 to identify means for improvement, prepare a draft work programme for each country and finally allow a discussion of technical problems experienced in connection with the application of the model to the case studies. The duration of the Workshop will be nearly two weeks.

In view of this agenda, a large number of persons should participate, ie. representatives of end-user organisations (18), the Executive Secretary, the Regional Coordinator, the National Representatives and the 22 Counterparts. Although some of them only will participate part of the time, the total number of participant-weeks is much larger than estimated earlier. The Workshop, however, is considered a very important event in many respects, and the Steering Committee is requested to approve the budget.

5. Total budget: The increase in the above items hence causes a total increase of 343,000 in comparison with the tentative budget.

9. Contingency: Two of the planned activities for 1995, ie. the Regional Training Course and the University Seminar, do not form part of the original budget, and will be impossible to accommodate through savings on other items without serious impacts on the project. It is noted, however, that the Consultant's support to these activities are financed as part of item no.1.

Both activities are aiming at strengthening the institutional capacity which is very much needed if sustainability of the transferred technology shall be achieved. It is proposed that the Steering Committee recommends the use of the contingency funds for said activities. It is noted, that the use of the contingency funds requires the prior approval of Danida.

The Table also includes a tentative budget for 1996. This budget is similar to the one presented at the last Steering Committee Meeting, yet with adjustments to accommodate certain of the increases made in the budget for 1995. The budget for the Regional Workshop in 1996, however, has been increased by 50,000 in view of the likely change of scope also in 1996. In total the revised tentative budget for 1996 is some 60,000 less than previously assessed.

The projected total cost of the original budget items, however, now suggest an overrun of some 105,000. Use of the contingency fund to finance this deficit and the additional 1995 activities still leaves some 345,000 to remain in the contingency fund.

TABLE 5.1 EXPENDITURES 1994 (FINAL ACCOUNT)

	Total	Budget	Deviation
	1994	1994	1994
1 CONSULTANT'S FEES	2,928,115	3,185,242	(257,127)
1.1 DHI	2,432,187	2,318,922	113,265
1.2 SMHI	430,098	866,320	(436,222)
1.3 Telemetry consultant	65,830	0	65,830
2 TRAVELS	230,702	371,000	(140,298)
2.1 International	197,473	300,000	(102,527)
2.2 In Central America	1,212	25,000	(23,788)
2.3 In Scandinavia	16,522	36,000	(19,478)
2.4 Car rental	15,495	10,000	5,495
3. ACCOMODATION AND P.D.	281,714	420,000	(138,286)
3.1 DHI/SMHI in Central America	167,655	225,000	(57,345)
3.2 SMHI in Denmark	55,949	130 000	(74,051)
3.3 Senior visits to Denmark	58,110	65,000	(6,890)
4. HARDWARE	2,513,882	1,960,000	553,882
4.1 National Flood Centres	1,026 051	1,280,000	(253,949)
4.2 Universities	628 331	560,000	68,331
4.3 Computer rental	199,500	120,000	79,500
4 4 Telemetric systems	660,000	0	660,000
5. SOFTWARE	744,000	792,000	(48,000)
5.1 HIS	232,500	247,500	(15,000)
5.2 MIKE 11	511,500	544,500	(33,000)
5.3 HBV			
6. REGIONAL WORKSHOPS	130,335	150,000	(19,665)
6.1 80 % contribution of costs	130,335	150,000	(19,665)
7 REGIONAL COORDINATION	125,791	171,000	(45,209)
7.1 Travels	3,655	10,000	(6,345)
7.2 Accomodation & per diems	10,877	8,000	2,877
7.3 Communication	4,577	8,000	(3,423)
7.4 Visit to Denmark		0	0
7.5 Steering Committee meeting	32,874	45 000	(12,126)
7.6 Office support CEPREDENA	73,808	100,000	(26,192)
8 OTHER EXPENSES	56.837	45,000	11 837
8.1 Insurance of DHI/SMHI staff	2,314	4,000	(1,686)
8.2 Visa & incubations	2,065	4,000	(1.935)
8.3 DHI communication	35 806	25,000	10.806
8.4 Publication	16 652	12,000	4.652
TOTAL	7,011,376	7,094,242	(82,866)
9. CONTINGENCY			
GRAND TOTAL	7,011,376	7,094,242	(82,866)

TABLE 5.2 BUDGET FOR 1995 - Danish Contribution (in DKK)

	Inception phase 1993	Data col./trainin 1993	TRAINING 1994	APPLICATION PHASE 1995-budget	1996-budget	TOTAL 1993-1996	Total Original budg.	Total Deviation
1. CONSULTANT'S FEES	1,024,367	561,346	2,928,115	1,920,000	1,768,086	8,201,914	8,201,914	0
1.1 DHI	775,313	314,208	2,432,187	1,680,000	1,528,086	6,729,794	5,663,479	1,066,315
1.2 SMHI	249,054	247,138	430,098	240,000	240,000	1,406,290	2,538,435	(1,132,145)
1.2 Telemetry Consultant			65,830			65,830	0	65,830
2. TRAVELS	117,689	8,969	230,702	307,000	251,000	915,360	981,160	(65,800)
2.1 International	90,167		197,473	238,000	182,000	707,640	763,560	(55,920)
2.2 In Central America	12,754		1,212	45,000	45,000	103,966	121,000	(17,034)
2.3 In Scandinavia	8,730	5,349	16,522	6,000	6,000	42,601	56,600	(13,999)
2.4 Car rental	6,038	3,620	15,495	18,000	18,000	61,153	40,000	21,153
3.ACCOMMODATION AND P.D.	120,572	73,720	281,714	484,500	385,500	1,346,006	1,713,000	(366,994)
3.1 DHI/SMHI in Central Americ	120,572	39,825	167,655	484,500	385,500	1,198,052	1,440,000	(241,948)
3.2 SMHI in Denmark		33,895	55,949			89,844	229,500	(139,656)
3.3 Senior visits to Denmark			58,110			58,110	43,500	14,610
4. HARDWARE	36,185	56,840	2,513,882	90,000	90,000	2,786,907	2,868,000	(81,093)
4.1 National Flood Centres			1,026,051			1,026,051	1,866,000	(839,949)
4.2 Universities			628,331			628,331	636,000	(7,669)
4.3 Computer rental	36,185	56,840	199,500	90,000	90,000	472,525	366,000	106,525
4.4 Telemetric systems			660,000			660,000	0	660,000
5. SOFTWARE		1,101,000	744,000	48,000		1,893,000	1,893,000	0
5.1 HIS		330,000	232,500	15,000		577,500	577,500	0
5.2 MIKE 11		726,000	511,500	33,000		1,270,500	1,270,500	0
5.3 HBV		45,000				45,000	45,000	0
6. REGIONAL WORKSHOPS	240,422		130,335	250,000	200,000	820,757	510,000	310,757
6.1 80 % contribution of costs	240,422		130,335	250,000	200,000	820,757	510,000	310,757
7. REGIONAL COORDINATION	55,216	32,651	125,791	171,500	171,500	556,658	295,200	261,458
7.1 Travels	15,697		3,655	14,500	14,500	48,352	55,000	(6,648)
7.2 Accomodation & per diems	16,490		10,877	22,000	22,000	71,367	60,000	11,367
7.3 Communication			4,577	14,000	14,000	32,577	36,000	(3,423)
7.4 Visit to Denmark		32,651				32,651	36,200	(3,549)
7.5 Steering Committee meetin	23,029		32,874	46,000	46,000	147,903	108,000	39,903
7.6 Office support CEPREDEN			73,808	75,000	75,000	223,808	0	223,808
8. OTHER EXPENSES	25,018	5,917	56,837	69,500	68,500	225,772	178,800	46,972
8.1 Insurance of DHI/SMHI staff	3,167	328	2,314	10,500	7,500	23,809	28,800	(4,991)
8.2 Visa & incubations	2,378	420	2,065	8,000	6,000	18,863	30,000	(11,137)
8.3 DHI communication	19,473	4,264	35,806	45,000	45,000	149,543	90,000	59,543
8.4 Publication		905	16,652	6,000	10,000	33,557	30,000	3,557
TOTAL	1,619,469	1,840,443	7,011,376	3,340,500	2,934,586	16,746,374	16,641,074	105,300
9. CONTINGENCY				408,000	0	408,000	858,926	(450,926)
9.1 Regional Training Course				375,000		375,000		
9.2 University Seminar				33,000		33,000		
GRAND TOTAL	1,619,469	1,840,443	7,011,376	3,748,500	2,934,586	17,154,374	17,500,000	(345,626)

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