EVALUATION OF ECHO'S 2000 AND 2001 FUNDED ACTIONS IN CAMBODIA:

June 24 – August 23, 2002

WATSAN AND FOOD SECURITY REPORT

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The comments contained herein reflect the opinions of the consultants only.

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Table of contents

Executive	summary	3
1. Relev	ance of echo interventions	5
1.1 Wa	ter and sanitation	5
1.1.1	Context	5
1.1.2	Major gaps in access to water:	5
1.1.3	Flood and droughts.	
1.1.4	Increasing sources of funding for rural water supply.	
1.1.5	Relevance of Echo interventions in water and sanitation	
	od security	
1.2.1	Context	
1.2.2	Malnutrition in remote areas	
1.2.3	Relevance of ECHO food security intervention in Cambodia.	
	ral roads and Mine clearance	
	ency	
	neral comments	
2.1.1	High quality of ECHO inputs	
	Lack of baseline technical information.	
2.1.3	Well paid, good technical staff.	
	iciency of the watsan component.	
2.2.1	Appropriateness of technologies	10
2.2.2	ECHO-provided water services.	
2.2.3	Construction of rural infrastructure using local competencies.	
	Double services.	
	Unit costs of watsan equipment are rather high.	
	Cost-efficiency is sometimes lower than that of other development projects in Cambodia	
	iciency of food security interventions	
	iciency of other activities.	
	iveness.	
	ectiveness of watsan activities	
3.1.1	All water points visited are in use	
3.1.2	Quality should be provided along with quantity	
3.1.3	Water use training and hygiene training not yet assessed	
	ectiveness of food and security intervention.	14
	Good general effectiveness	
3.2.2		
	ectiveness of rural accesses and mine clearance operations.	
	ks between watsan interventions and food security.	
3.4.1	The integrated approach.	
3.4.2	Characteristics of ECHO domestic water and food security project.	
3.4.3	Domestic water supply is foremost a matter of public health	
	t	
	pact of watsan activities	
	Water from tube wells is not always used for drinking, but improves the general standards	
	ne	
4.1.2	Latrines are essential for urban resettlement areas, but are not really an emergency in rura	
areas.	·	1
4.1.3		17
	Impact over time of water and sanitation activities in Cambodia	
_	Basic agricultural inputs (seeds and tools) have allowed success in resettlement operations	
4.2.1	Dasic agricultural imputs (seeds and tools) have anowed success in resettlement operations	. 1/

4.2.2	FFW is often not used due to time and technical constraints	18
4.2.3	Small irrigation.	18
_		
	· · · · · · · · · · · · · · · · · · ·	
	· · · · · · · · · · · · · · · · · · ·	
	• • • • • • • • • • • • • • • • • • • •	19
5.1.2	Community participation and some form of cost recovery/cost sharing essential for durable	.e
servic	e	20
5.1.3	Management and maintenance of water points	20
5.2.3	Think and prepare Exit strategy.	21
	4.2.3 4.3 Imp Sustai 5.1 Sus 5.1.1 service 5.1.2 service 5.1.3 5.2 LRI 5.2.1 service 5.2.1	4.2.2 FFW is often not used due to time and technical constraints 4.2.3 Small irrigation

Annexes:

- Table of OVIs
- Map of Watsan projects

EXECUTIVE SUMMARY

Evaluation of ECHO's 2000 and 2001 funded actions in Cambodia:

TECHNICAL WATSAN AND FOOD SECURITY REPORT

Action evaluated: Post-emergency water and sanitation/food security sector aid provided to vulnerable populations in Cambodia.

Date of the evaluation: June 24 – August 23, 2002

Consultants' name: Claudio Schuftan MD and Jean Pierre Mahe for S.H.E.R. Ingénieurs-Conseils s.a.

Purpose and methodology:

- The evaluators set out to obtain the information needed to improve future ECHO actions in the water and sanitation/food security sector in Cambodia and to offer an independent opinion of the achievement of expected results in that field, as well as of the relevance, efficiency, effectiveness, impact and sustainability of five watsan and FS projects financed by ECHO in 2000 and 2001.
- Three priorities were followed:
 - a) evaluating each project against its own merits and achievements as per their respective LFMs,
 - b) assessing to what extent partners had made progress to hand-over these projects to long term development funding organizations, and
 - c) recommending geographical areas of the country where ECHO should consider a continued involvement in watsan/FS in the future.
- In depth reviews were made of documentation at all levels and interviews were held with Echo Brussels and Cambodia staff, the EU Delegation in P Penh and staff of partner NGOs.
- Field visits to all projects followed.
- Summary evaluation reports for each project are presented as annexes to the Synthesis Report.
- A debriefing was held for most of the partner NGOs (including those not evaluated); details in annex to the Synthesis Report. The EU Delegation also got a debriefing.

Main technical findings and conclusions:

The following report is the results of the evaluation of eight ECHO projects in Cambodia, of which four had watsan, food security and infrastructure activities.

Relevance: ECHO watsan activities in Cambodia mostly comprise the construction of wells, the distribution of water equipment and hygiene training. Food security components include food for work, distribution of seeds, tools, animals and technical support for home gardening. In addition, ECHO has been involved in the construction of rural roads in remote villages. All these activities were found to be quite relevant to the type of beneficiaries who are targeted by ECHO, i.e, former displaced persons and rural poor people who live in former war-affected areas.

Efficiency: ECHO partners showed professionalism in implementing the projects. The quality of the work done was found to be very high, the staff competent and adequately trained. However, baseline information was often not properly collected or shared before implementation; costs were high (especially for the watsan component). Concerning agricultural activities, NGOs were not specialized in it so could not provide top expertise.

Effectiveness: Most targeted beneficiaries have now access to the services set up by ECHO and all the systems were in use during the evaluation although it was found that not much was specifically done for highly vulnerable people such as widows and female-headed households who are numerous in these former war-affected areas.

Impact: The overall impact of project activities was good. Thanks to ECHO funding, thousands of poor people have had access to water, and have gained in safety while fetching water, because of demining operations carried out. Food security intervention have an inherently longer and less visible impact: distribution of seeds and tools is not a very pertinent activity anymore (except after a disaster) as many people have already received this type of assistance. FFW is no longer used by the visited partners, and the most vulnerable were sometimes not touched by ECHO food security interventions.

Sustainability: Social engineering has been used to improve the use and sustainability of systems and services provided by ECHO. Maintenance committees have been trained (except for roads) and technical training has been provided, but it is likely that this will be insufficient to ensure the full sustainability of watsan equipment.

As concerns LRRD, ECHO projects fit in the long term strategy of most partners that, in general, have the adequate competence to carry on interventions provided they get access to long term funding. ECHO partners rightly consider that their interventions have made the local population eligible for development programs such as the upcoming EU funded ECOSORN project.

Recommendations:

While considering that some of the following recommendations are already being considered by ECHO such as the improvement of information-sharing, the consultants recommend that :

ECHO to improve the recruitment of local staff (better salaries), to better organize the sharing of information among partners, to allocate funds to the T.A for him/her to access technical expertise locally, to de-emphasize food security interventions, to integrate water and health projects, and to continue mine clearance efforts.

ECHO partners to better technically prepare their projects, to better prepare staff TORs, to give greater attention to the most vulnerable people, to increase the use of local competencies, to improve the cost efficiency of their projects (especially watsan) and to prepare workable exit strategies during ECHO projects implementation.

Major lessons learned:

In a rehabilitation context, free assistance does not foster sustainability of projects and services. It is more, it may even hinder the local ownership of systems provided and, therefore, affect their maintenance; moreover, free assistance does not prepare the population to face possible upcoming disasters.

ECHO-sponsored activities tend to be more and more technically complex and require varied expertise that is not necessarily found among the staff of partner NGOs. External short-term technical assistance is needed to backstop both NGOs and the ECHO T.A.

Whereas in an emergency context cost-efficiency may not be the top priority, it now becomes a more important criterion in the implementation of post-emergency ECHO projects.

Working with local institutions and government agencies is a key factor of success and sustainability in rehabilitation projects. Most ECHO partners in Cambodia have actually followed national policies and entered into agreements with government bodies.

1. RELEVANCE OF ECHO INTERVENTIONS

1.1 Water and sanitation

1.1.1 Context

According to the 1999 National Socio-economic Survey of Cambodia, only 28% of the rural population has access to safe water (from protected sources, protected hand-dug wells and tube wells). This rate, in fact, reflects people's practices (i.e., where they actually drink water from) rather than the availability of safe water (i.e., access to a safe water source).

This rate is much lower in former war areas (Northwestern provinces, Bantey Meanchey, Siem Reap, Oddar Meanchey, Preah Vihear) and in remote provinces (Rattana Kiri, Mondol Kiri).

Table 1 : Safe water in rural areas in the less 10 equipped provinces

% of people using the following sources of water					
Province	Tube well (%)	Dug well(%)	Surface water(%)		
Mondol Kiri	0.4	16.5	75.8		
Kampong Thom	0.8	81.6	14.2		
Oddar Meanchey	0.8	18.4	80.2		
Koh Kong	1.3	62	6.5		
Rattana Kiri	2.1	27.1	69.3		
Pursat	4	57.5	28		
Kampot	5.4	45.1	45.6		
Siem Reap	5.8	76	11.6		
Preah Vihear	7.5	32	38.9		
Banteay Meanchey	7.8	27.4	47.9		
Battambang	8.4	41	43.1		

National Socio Economic Survey, 1999

1.1.2 Major gaps in access to water:

At present --mostly because of the state of warfare and insecurity that reigned over the northern part of the country-- the following populations face an acute shortfall in their access to safe water:

- Recently resettled people: Very recently resettled villages are now found in the former war areas.
 Since the last wave of repatriations in 1998 and 1999, settlers are mostly relocated in new villages along the new roads opening in the Northwest (especially the road between Samrong and Preah Vihear). In Anlong Veng and Trapeang Prasat --former Khmer Rouge areas-- authorities encourage villagers to leave their villages in the forest (where it is difficult to provide them with basic services) and settle along the newly opened roads.
- Newly opened war-affected areas: Because of the state of war plus the presence of mines and the
 absence of roads, some areas have never had any water infrastructure. These areas are mostly located
 along the Thai border in Battambang, Bantey Meanchey, Oddar Meanchey and above all in Preah
 Vihear province.
- Border urban areas, such as Poipet and O Smach where many former refugees and IDPs have settled
 after the conflict: From 1998 to 2000, and in order to make room for the construction of a handful of
 casinos, thousand of people were pushed out of the city center of those two cities into areas not yet
 demined and without any minimum watsan equipment.
- Remote, under-populated, difficult access areas, such as Rattana Kiri and Mondol Kiri, have also been under-served and under-equipped. Considering the social habits of the population in these areas, a big emphasis needs to be given to education.

1.1.3 Flood and droughts.

Flooding is an expected recurrent disaster in Cambodia. Waters may flood land for months, contaminating wells and preventing people from burying their stools. People living in flooded areas complain of a lack of potable water and latrines, as two of their greatest preoccupations (besides loss of crops).

In that respect, watsan disaster preparedness projects should be encouraged, including activities such as raising family latrines, protecting wells, raising pumps, providing chlorination kits and water storage jars.

1.1.4 Increasing sources of funding for rural water supply.

Long term development funds for domestic water supply are now available in Cambodia:

- ADB (Kampong Thom, Kampot, Pursat)
- Seila (local development funds)
- World Bank (Northeast provinces, Kampong Thom, Stung Treng, Rattana Kiri....)
- The Social Fund of Cambodia (World Bank) in all provinces of Cambodia.

Examples of this are: In Trapeang Prasat and Anlong Veng, UNICEF will finance 50 wells in the next year. In Bantey Meanchey, Battambang and Siem Reap communes, Seila/Local Development Funds are available (10,000 US\$/year/commune).

1.1.5 Relevance of Echo interventions in water and sanitation

Most ECHO partners' activities that include the construction of community infrastructure (tube wells, ponds, hand-dug wells) and the distribution of family water storage equipment (jars, roof rainwater catchment) have been properly designed to address the needs of local population.

- ECHO partners (CRF, ZOA, CARE) have been able to provide water in Anlong Veng and Samrong where locally displaced people were settled in places with no water infrastructure.
- ECHO partners (ZOA) also supplied urgently needed water and sanitation facilities to displaced people in peri-urban areas of Poipet and O'Smach, first by trucking-in water and then by installing community wells and ponds, distributing jars and helping build latrines.
- In newly opened areas, such as Ampil (Bantey Meanchey) and Preah Vihear, ECHO partners (CARE, AAH) have installed wells and have organized hygiene education.

Table 2: Summary of ECHO Water and sanitation activities in Cambodia.

Sub sector	Activities		
Latrines	 Family latrines in urban areas for resettled families, Poipet and O' Smach) (ZOA) Pilot project of latrines in rural areas for rural families in newly opened areas, Ampil (CARE) 		
Rural water	 Construction of wells, construction and distribution of jars, rainwater catchment and pumping equipment in newly opened area and new villages in Oddar Meanchey, Bantey Meanchey, Battambang (CARE, CRF, AAH, ZOA, HI, AAH) Construction around existing water sources in Rattana Kiri (HU), not yet implemented 		
Hygiene promotion and training	Basic water use and hygiene training held by all the NGOs involved in work in water.		

1.2 Food security

1.2.1 Context

85% of the Cambodian population is rural and relies on agricultural income. But agriculture systems in Cambodia remain highly vulnerable to weather variations (drought and floods, mostly because of poor water management; less than 10% of the Cambodian lands are irrigated or drained). In provinces such as Prey Veng and Kampong Thom, exceptional flooding has caused severe food shortages in the past 2 years.

Food security has worsened due to personal insecurity, land mines and unclear land ownership and has especially affected vulnerable groups in the areas where ECHO partners work.

Except for emergency situations, food aid is no longer used in Cambodia. Food For Work is mostly used as an incentive for the construction of rural infrastructure or for people to participate in other development activities such as education or training..

1.2.2 Malnutrition in remote areas

According to UNICEF, WHO and FAO, malnutrition is still common in rural Cambodia. Nutrition surveys in 1996 and 2000 showed high malnutrition rates --malnutrition being more severe in remote areas.

Table 3: Malnutrition prevalence rate in 1996 and 2000, (children 6-59 months).

Malnutrition indicators:	MISC 1996	CDHS 2000
Underweight children	52 %	50 %
Stunting	56 %	50 %
Wasting	13 %	16 %

The highland and indigenous population of Rattana Kiri and Mondol Kiri are more affected. Used to find there supplementary feeding in forest areas, they now face more and more difficulties as the forest area is being replaced by plantations. Projects such as the nutrition HU project evaluated, aims at giving support to these populations on that matter.

Intervening in nutrition, as confirmed by the HU team, requires long-term interventions and efforts that are often beyond the scope of ECHO projects. However, ECHO funds are sought to kick off nutrition activities when a partner can then ensure continuation and follow up.

1.2.3 Relevance of ECHO food security intervention in Cambodia.

Most ECHO Food Security activities in Cambodia are in agriculture (and livestock)-related activities or use food for work. In general, they are used as an initial support for settlers (CRF, ZOA) and as a kick-start for development programs (CARE, HI):

Distribution of rice seeds is used to help settlers (CARE, HI) or residents to replant just after a disaster (UNICEF). It provides an important socio-economic input since farmers can allocate their meager resources for other purposes.

Distribution of vegetable seeds aims at improving the nutritional status of beneficiaries, such as the reduction of Vit. A and iron deficiencies (CRF and CARE in Oddar Meanchey, UNICEF in Kampong Thom).

Distribution of animals (cow bank in the HI project) has been used as a way to target the most vulnerable (disabled, widows) that are not eligible for other food security activities. Cow banks only have long-term impact since beneficiaries really take advantage of their cow (for draught) once they have a calf of a productive age to pull a cart or a plough.

Irrigation ponds (CARE, HI) were used to provide water for small irrigation activities (for gardening). However, it was found that ponds usually benefit a limited number of families since getting water for irrigation is costly (in terms of energy, labor and/or fuel). Several of the irrigation ponds visited ended up being used more for domestic water rather than for agricultural purposes.

FFW is being used mostly for the construction of rural infrastructure (rural roads by ZOA and CARE). It has a short term impact (during the food distribution), as well as a long term impact through the use of the infrastructure that is built.

Gardening and integrated farming have been used by HI and CARE for poor families with very small land plots so as to get maximum benefit.

Sub Sector	Activities		
Food For Work	Road construction by ZOA in Oddar Meanchey		
	Ponds construction by ZOA in Oddar Meanchey		
Agriculture	Distribution of seeds and tools by CARE and CRF in Oddar Meanchey		
	• Vegetable seeds distribution and model gardens by CARE in B.		
	Meanchey		
	Integrated farming used by HI in Siem Reap		
	Small irrigation (using ponds) used by CARE and HI		
	Distribution of rice seeds through a rice bank by HI in Battambang		
Livestock	Distribution of cows by HI in Battambang		

Table 4 : ECHO Food Security activities in Cambodia.

1.3 Rural roads and Mine clearance

ECHO has been involved in the construction/upgrading of rural access roads (HI in Samlaut, CARE in Oddar Meanchey, ZOA in Poipet and Samrong) that have allowed to local remote population to have access to basic services (access to water points, health centers). These interventions were most relevant, but partners should, from now on, seek more and more support from the upcoming ADB and World Bank infrastructure projects.

The most mined areas are located in the Northwest, along the Thai border and in the former front lines in Siem Reap, Battambang, Bantey Meanchey, Oddar Meanchey, Preah Vihear and Kampong Thom. UXO (Unexploded Ordinances) can sometimes be found in Rattanakiri and Mondolkiri). In the coming months, HALO foresee intense demining operations along the roads of Oddar Meanchey and Preah Vihear.

Mine clearance has been necessary to secure accesses to health and water. Roads, ponds, river banks and public places were indeed the most subjected to mining by warring parties. Hundred of mines were found in the ECHO areas of intervention. In some villages, even the houses of ECHO beneficiaries were surrounded by mines.

Relevance, recommendations:

Watsan

- The major rationale for ECHO to fund water activities is to provide rapid assistance to settlers in newly opened areas or newly created villages.
- This assistance will be less and less needed as rural infrastructure improves and long-term financing becomes more available in Cambodia.
- Assistance is still very much needed is disaster preparedness-type of activities.
- As a priority, ECHO funds should be reserved to focus on special groups (rather than on a whole area) that have a low capacity to access external assistance, because of their low level of communication and institutional connections.
- As relates to sanitation, ECHO funds should be reserved more for slum areas where needs are more acute and impact on health indicators faster.

Food Security

- In the present context, ECHO food security interventions have to be justified on a case-by-case basis if not part of a disaster relief operation (or disaster preparedness).
- There will be fewer and fewer reasons to distribute seeds and tools as more and more war-affected people have already passed the resettlement phase. A few villages in Oddar Meanchey and Preah Vihear are still eligible for such kind of an operation though.
- Food security operations aimed at fighting malnutrition are long-term type actions. ECHO funds can be proposed as a push-start in such cases only if ECHO partners concomitantly engage themselves in the long-term support of these actions.

2 EFFICIENCY

2.1 General comments

2.1.1 High quality of ECHO inputs

The infrastructure and equipment delivered by ECHO partners were, in general, of satisfactory quality and fitted the national specifications. However, in some cases, ECHO partners have lacked the ad-hoc expertise needed to optimize the equipment installed and thus maximize the ECHO investment. External expertise is probably required to provide advice, follow-up and monitoring.

Some deficiencies were found in the recording of wells, the preparation and transmission of log-sheets to the relevant authorities, and in some of the technical documentation for bidding procedures.

2.1.2 Lack of baseline technical information.

Due to the sometimes short time available for the preparation of their proposals, ECHO partners had difficulties to gather the technical information necessary to make the right choices and selections. Specialist advice was not always sought when preparing the watsan component of the proposals. For instance, drilling conditions were not properly assessed by CARE and CRF in Bantey Ampil and Oddar Meanchey, UNICEF lack information about the after-flooding adequate interventions.

ECHO should take this in consideration and allocate resources to NGOs for the collection of such technical information and to encourage technical discussions on this among ECHO partners.

2.1.3 Well paid, good technical staff.

As the technologies used become more and more complex, the need for qualified staff increases. In remote areas where ECHO projects are located, this expertise is rare and needs to be brought from outside, even sometimes from abroad. However, it was found that ECHO salary ceilings do not allow hiring the appropriate level of expertise.

On the other hand, in their project proposals, ECHO partners do not include the qualifications of senior technical staff they will need to supervise and monitor technical operations. Vague information was found to be provided in the budget sheet, but no terms of reference were usually defined for this type of staff..

2.2 Efficiency of the watsan component

2.2.1 Appropriateness of technologies.

Most technologies introduced by ECHO partners fit the national general recommendations regarding the provision of water supply (i.e., 40 liters safe water/day/capita at less than 150 meters).

Technical choices selected by ECHO partners included:

- Tube wells (also called drilled wells or boreholes): In rural areas, tube wells are the most common way to provide safe water (except when there is arsenic in the water --not the case in ECHO areas). In some cases, some wells yield iron-loaded water that needs local treatment before human consumption.
- Hand-dug wells: Whenever drilling is not possible or not recommended, hand-dug wells are a good solution provided they are covered and equipped with water retrieval systems (bucket or other) that avoid contamination.
- Rainwater catchment: Rainwater catchment systems allow to provide very appreciated safe water at home. However, the installed system has to allow for a sufficient reserve of water for longer term duration (about 3000 liters/family) and be kept with great care to avoid external contamination.
- Ponds: Ponds have to be seen as an alternative to hand-dug and drilled wells. However, they are not a source of potable water and people have to be provided with domestic filtration means (such as sand filters), or equipment to decantate and/or boil the pond water.

2.2.2 ECHO-provided water services.

Some ECHO partners do not provide the full services mentioned above (i.e., 40 liters/person/day from wells less than 150 meters far) and consider that ECHO funding should be used to reach an emergency level of water to the families; longer-term development funds should then fund to reach full services. In our case:

- ZOA built wells for 50 families instead of for 25.
- The storage capacity was often less than 3000 liters.

This approach does not contradict the ECHO mandate, but one has to make sure that some continuity will be given to ensure households' access to the minimum level of services recommended at a later date.

2.2.3 Construction of rural infrastructure using local competencies.

With only few exceptions, there is no point for ECHO to continue financing NGOs to build infrastructure using their own resources and equipment. Partner NGOs should be encouraged to contract out these activities to the private sector (several independent operators (NGOs and private) have high quality equipment and have been able to drill in remote areas) while ensuring good monitoring (with experienced in-house expatriate or local staff or by contracting out independent engineers or engineering firms --as ZOA did in Poipet).

By contracting out, ECHO partners will enhance the capacities of independent drilling companies and local NGOs rather than keeping skills that are likely to be partially lost when they leave the country. However, when contracting out to the private sector, it is recommended that NGOs have in-house monitoring capacity (or contract out this function to local consultants or engineering firms) and keep the social engineering part needed to launch the water projects (including social mobilization, awareness creation, water education, and the rational use/saving of water resources).

2.2.4 Double services.

Considering that ECHO funding must benefit the maximum number of people possible, redundant actions should be avoided. Projects that provide two sources of potable water supply (community well, rainwater catchment, family well) are not cost effective. However, improving the storage capacity complements the digging of wells and can have a significant impact on the conservation of water.

2.2.5 Unit costs of watsan equipment are rather high.

Considering the various contexts in which ECHO partners work, it is difficult to make cost comparisons, and establish a fortiori price scales. In the areas covered by ECHO, costs may vary, not only because of technical (geology) reasons, but also due to the accessibility of the site, the local availability of appropriate materials, the presence of an experienced private sector provider, etc. Even considering that, some unit cost prices were found to be quite high, for instance:

- Some NGOs have charged ECHO for drilled wells up to 2,125 EURO (for positive deep boreholes, including materials and drilling staff, but not including transport costs) where private sector contractors could drill the same type of deep borehole for much less, in the same geological conditions and using the same kind of equipment. Costs of private sector providers were sometimes found to be 40% less than NGO costs.
- Water filtration systems have been charged for up to 80 EURO, where household treatment systems in other areas cost not more than 30 EURO.

In various cases, evaluators noticed that good tenders were a key factor in reducing the unit costs; costs incurred after well planned and documented bidding processes were in several cases more than 20 % cheaper for the same geological context. (Bidding procedures are already used by the major development operators in Cambodia; The Social Fund of the Kingdom of Cambodia and the Seila program supported by UNDP).

Concerned about the fact that competition caused by the bidding may affect the quality of the drilling, it is emphasized that close technical monitoring has to be kept in-project.

Drilling charges (for tube wells) per meter can be envisaged only if a close system of monitoring is put in place both by ECHO and by partner NGOs. However, NGOs should always provide some information about the depth of boreholes in their proposals and reporting.

ECHO partners should also mention if they use deep pumps or shallow pumps (a deep pump cost about 400 EURO/unit whereas a shallow pump cost about 20 EURO/unit).

Negative boreholes.

According to the type of geology, the success of drilling varies quite a bit. In some areas, like Bantey Ampil, the rate of negative drilling can reach 70%. Preliminary electronic testing cannot really be encouraged, because of its high cost, its low rate of success, and the presence of mines that makes it difficult to use.

However, considering that there is more and more information about negative drilling rates (except for some remote areas in Cambodia), it is possible to anticipate drilling conditions and, therefore anticipate costs. ECHO partners should be encouraged to quote global costs in their proposals rather than charging

ECHO for negative drilling that is difficult to monitor, while indicating clearly the rate of negative drilling that they expect and the amount that is included for that purpose.

2.2.6 Cost-efficiency is sometimes lower than that of other development projects in Cambodia.

Recent studies (e.g., PRASAC DWS impact assessment) have shown that the level of subsidies that is necessary to provide the minimum level of water services recommended by the Ministry of Rural Development (40liters/capita at less than 150 meters) range between 8 and 12 Euro /capita by using:

- Drilled wells,
- Covered hand-dug wells,
- Rainwater catchment systems and jars (with at least 3000 liters capacity),
- Community ponds and individual filtration systems.

Evaluators found that the ECHO partners evaluated were in the upper range of these costs, sometimes exceeding 15 Euro/capita --the most expensive being 18 Euro/capita. This reflects not only high unit costs, but also sometimes a too small number of actual beneficiaries.

2.3 Efficiency of food security interventions

Technically, most FS activities supported by ECHO are rather simple (FFW, distribution) and did not call for much expertise.

Agricultural interventions, gardening and integrated farming, were properly implemented by NGOs having some experience in the sector and being willing to continue with longer-term involvement. Those having less experienced staff in Cambodia, or not having long-term plans to stay, have often not been able to bring about significant results within the time scope of ECHO projects.

In some projects, the level of basic technical information was found to be very low. In general, there have been only few examples of information sharing among ECHO partners working in food and security projects, even among those doing very similar projects (gardening). Considering that ECHO (and the E.U in general) have been involved in food and security projects in Cambodia since the mid 90s; by now, there should me more written information (surveys, final reports, analyses) to be shared among partners.

2.4 Efficiency of other activities.

Rural access roads constructed by partners were contracted out to the private sector. The work was apparently well done (all roads were in good shape and state of the art). However, only one partner had proper in- house competence (HI) to monitor and follow this type of activity. ZOA hired the services of a external specialist to monitor the work.

Although demining operators have independent practices, they conduct their own vulnerability surveys and define their own priorities; the funds that they usually receive are not earmarked for specific areas; further, they have given priority to ECHO sites of interventions since they reckon that the level of potential beneficiaries of ECHO interventions is high.

Demining operators have a good working relationship with ECHO partners. ECHO partners working in collaboration with HALO Trust are of the opinion that they were very flexible to adapt their constraints and provide a top-quality service. Demining operators would appreciate to be informed earlier about the potential areas to be demined.

Note: HALO Trust has 89 sections and about 1000 staff. Their 2001 ECHO budget includes 3 sections and represented about 4% of their total funds.

Efficiency, recommendations:

- Considering the complexity of some situations regarding the equipment to be used, NGOs should be allowed to call for external expertise with ECHO funding.
- ECHO partners should be invited and guided by the ECHO Technical Assistant to share their technical expertise either through joint meetings or by collaborating in the preparation of working documents.
- Whenever the activities proposed by the partners include activities with which the ECHO Technical Assistant is not familiar with, s/he should be in a position to request external assistance in the respective subject area; to save time, this expertise should be found in-country.
- ECHO partners should be invited to share their technical documents by posting them with the ECHO T.A who could then organize a small library.
- ECHO should review the salary ceilings for qualified staff and NGOs should include terms of reference and qualifications of their technical staff in their proposals.

Watsan

- Cost per capita of providing water is sometimes high. Efforts have to be made by ECHO partners to improve cost-efficiency.
- Bidding should be used whenever possible, with adequate monitoring of the work being done.
- ECHO partners should be encouraged to use local contractors rather than build infrastructure by themselves in order to enhance local capacities.

Food Security

• Considering the short time frame of ECHO projects, food security interventions should be as simple as possible. Agricultural operations, if needed, should be entrusted to staff having a long experience in the sector in Cambodia and to NGOs that have the intention of providing the needed follow up.

3 EFFECTIVENESS.

3.1 Effectiveness of watsan activities

3.1.1 All water points visited are in use.

All the water points visited were in use at the time of the evaluation (that took place just after the actual completion of the projects). The evaluators saw that the water points were well located and likely to serve the population in a sustainable way although sometimes the number of beneficiaries was not as high as stated in the contract, or was lower than what is usual practice. Latrines and jars were provided to poor households; nevertheless, it was found that supra-structures were not promptly completed by beneficiaries (especially in rural areas).

3.1.2 Quality should be provided along with quantity.

In some cases, quantitative considerations were preferred to an in-depth analysis of vulnerabilities (e.g., more latrines being built, or more kits distributed to complete the quota regardless whether beneficiary is needy). ECHO assistance has been spread to a large number of people not always maximizing impact; it would have been wiser to provide more for the most vulnerable.

3.1.3 Water use training and hygiene training not yet assessed.

All ECHO partners have provided water use and hygiene training. Most NGOs have used materials that have been developed for this purpose in Cambodia. In general, it was found that not enough attention was given to that aspect (e.g., very short training periods). No attendance sheets of training sessions were found. ZOA and AAH used videos with good impact (ZOA in Samrong even did the Video training during the evenings when people are less busy and more available for training). A good number of ECHO wells were equipped with billboards containing pictorial hygiene information. However, apart from AAH, no benchmark KAP survey was done to check the effectiveness of education campaigns. (ZOA will do one in December).

3.2 Effectiveness of food and security intervention.

3.2.1 Good general effectiveness

In general, inputs provided by ECHO were used by the partners. It was found that rice seed banks were used (HI) by at least 50 families each, beneficiaries had kept their cow, people having received vegetable seeds said they had planted them, and no tools had been sold in the families that were visited. However, some irrigation ponds were obviously not used, or for drinking water rather than for agriculture.

3.2.2 Questions about gardening and vegetable seeds.

Beneficiaries have, in general, used the vegetables and gardening techniques prescribed by ECHO partners. However, it is not clear how much this help has reached the most vulnerable. Gardening and integrated farming depend on the interest of people who are mostly those who already have a garden, a private water source (or pumping means), good labor capacity and are not necessarily in need. Most of them could even buy the vegetable seeds from Thailand.

Despite the good will of NGOs and ECHO, some social sub-groups were left out of the planned food security activities in ECHO projects: widows, disabled and the elderly often have no labor to contribute to cultivate or to participate in FFW activities. Moreover, the landless are not reached by seed distribution programs. In addition, those special groups are more vulnerable in newly resettled villages and urban areas where solidarity mechanisms are often very weak.

On a similar note, small animals distribution (chicken, duck) is a way to include the rural poor. The evaluators can say that, concerning the Handicap International project in Samlaut, even if cow banks are borderline within the ECHO mandate (because of their long-term impact), it is one of the only food security components observed that was found to reach the very vulnerable giving them some degree of self-reliance (in case of a shock, they can use the cow as a guarantee or sell it for cash).

Table 5 : Exclusion cases in	some ECHO food security activities.

ACTIVITIES	Landless (no paddy fields)	Landless (no garden)	No permanent water source	Old women, widows, the disabled
Rice seeds	Cannot use the rice seeds			No labor capacity
Integrated farming		Cannot use the seeds		No labor capacity
Vegetable seeds		Cannot use the seeds	Can benefit from the garden only in the wet season	No labor capacity
Food For Work				No labor capacity
Community ponds				No labor capacity

3.3 Effectiveness of rural accesses and mine clearance operations.

From a general point of view, all access roads constructed by ECHO were used either by NGOs to provide assistance or by the local population for access to the newly built health or water facilities.

Beneficiaries expressed a high level of satisfaction regarding mine clearance operations even though a number of mine accidents are still caused by people going to the forest to fetch wood (forests are not considered as a demining priority).

In order to ensure the effectiveness of demining, it was found that HALO and CMAC working with ECHO partners give guarantees that the demined land can be safely and effectively used for humanitarian purposes. An institutional tool, the LUPU (Land Use Planning Unit) is being put in place in the Northwestern provinces (with the support of the EU) to monitor the use of demined land after demining (avoiding abuse in grabbing land) and to facilitate the relation between communities and demining operators.

3.4 Links between watsan interventions and food security.

3.4.1 The integrated approach.

The integration of activities is a good way to have an impact where the causes of a problem are multiple, or not easily identifiable. From an operational point of view, integrated programs require diversified expertise that is sometimes difficult to mobilize within the time frame and location of ECHO projects (HU had difficulties to find expertise in health, nutrition and water supply). In general, ECHO projects seem to be more suitable for agencies that can mobilize quick expertise with high professional backgrounds at local, national and international level. However, the collaboration of two specialized agencies to provide an integrated service to the population could be promoted.

ECHO projects	Watsan	Primary Health Care	Food Security
ZOA Poipet	X	X	
ANS – HI	X		X
AAH Preah Vihear	X		
HU Rattanakiri	X	X	
ZOA Samrong	X		X
CRF in Oddar Meanchey	X		X
CARE France in Samrong	X	X	X

Table 6 : ECHO partners that have integrated approaches

3.4.2 Characteristics of ECHO domestic water and food security project.

As of now, some ECHO projects have linked food security and domestic water supply in a integrated approach. However, the evaluators found that the approach was often integrated, but sometimes works at cross purposes (see below). The analysis of these projects shows that the technical characteristics of community water points for domestic use and irrigation water points differ.

- Community tube wells equipped with deep pumps have insufficient yield to be used for irrigation. Retrieving water from hand-dug wells is hard and exposes it to contamination.
- The supply of potable water requires higher investments and, therefore the water produced is too expensive to be used for irrigation purposes.
- Conflict may arise between domestic users and irrigation users when the source of water becomes scarce during the dry season.

• The needs of irrigation seldom fit with potable water point (a garden of 10 acres requires as much water as the needs of 5 to 10 families).

From a operational point of view, there was not much synergy between food security and water components in the management of projects evaluated. Required competencies are often very different, except concerning water management.

3.4.3 Domestic water supply is foremost a matter of public health.

In remote and newly opened areas, water supply is before anything, a matter of public health. It allows to quickly reduce morbidity and mortality related to diarrhea, skin diseases and other waterborne infections. Good water management may have a significant impact on the reduction of vector-borne diseases such as malaria.

From an operational point of view, water use and hygiene messages can be linked to basic health messages and can be brought to people by outreach health staff and village health volunteers. Impact and results from the provision of water and from water education can be directly assessed by examining medical records of health facilities so that corrective or adaptive actions can be undertaken rapidly.

In that respect, the example of MdM (Medecins du Monde) in Mondol Kiri is interesting. After having spent many years promoting PHC, they realized that the impact of their medical activities had plateaud due to a lack of access to water and basic sanitation among their target population.

Effectiveness, recommendations:

- Efficiency of social engineering can be measured by an adequate KAP (Knowledge, Attitudes, Practices) survey.
- When designing food security operations, ECHO partners should focus on activities that reach the most vulnerable groups, especially widows and female-headed households.
- In general, while preparing food security projects, designers should allocate funds and resources to the provision of water for irrigation so that it does not conflict with domestic water supply.
- Linking Water and health should be considered as a way to improve the efficiency and impact of watsan activities.
- Collaboration of specialized NGOs should be promoted to propose integrated services to target population.

4 IMPACT

4.1 Impact of watsan activities

4.1.1 Water from tube wells is not always used for drinking, but improves the general standards of hygiene.

Groundwater (from drilled wells and hand-dug wells) is often not well liked by rural Cambodians, because of its taste. In fact, ground water often contains iron and calcium salts that affect the taste (There is no arsenic reported in the areas where ECHO partners work). As a result, most rural Cambodians continue drinking surface water (from ponds, streams) while not many boil it (20 to 50% according to various studies). Nevertheless, the health status of the vulnerable people is still improved due to the fact that they use clean water for other domestic purposes such as corporal hygiene, washing dishes, etc.

Studies show that even if the Cambodian population is more and more informed about the beneficial effects of potable water, their behavior is still inconsistent due to, among other, socio-economic factors (poverty) and lack of needed equipment (appropriate storage, kettles, rainwater catchment systems). As ECHO projects are usually short term, and in order to have quick impact, alongside with water education, efforts should be made to deliver needed family water equipment, namely:

- Family water treatment units
- Jars with easy-to-use lids (two jars are recommended as a minimum: one for washing, one for drinking water)
- Kettle for boiling water and small containers to keep the boiled water.

4.1.2 Latrines are essential for urban resettlement areas, but are not really an emergency in rural areas.

Sanitation in urban areas, especially those towns targeted by ECHO projects (Poipet and O'Smach), are undoubtedly of an emergency nature. The case of Poipet, where insufficient sanitation has caused heavy water contamination, shows that, in peri-urban (slum) areas, water supply and sanitation need to receive equal attention by ECHO partners. In addition, it is found that local people pay more and more attention to that aspect, and those dwellers mentioning sanitation as their first concern are increasing.

However, the construction of latrines in rural areas is of less urgent character and their impact on the health of the local people is likely to be much longer term.

4.1.3 Impact over time of water and sanitation activities in Cambodia.

ECHO watsan activities in Cambodia have long term effects and, in that respect, are in line with the continuum/contiguum strategy promoted by ECHO.

Watsan activity	Immediate impact	Short term impact (1-3 months)	Medium term impact (3 m to 1 y)	Long term impact (more than 1 year)
Digging wells	X	X	X	X
Providing Jars	X	X	X	X
Water equipment	X	X	X	
Rainwater Catchment			X	X
Individual filters	X	X	X	X
Latrines in urban areas	X	X	X	X
Latrines in rural areas				X
Providing soap	X			
Hygiene education			X	X

Table 7: Classification of ECHO watsan activities according to their impact

4.2 Impact of ECHO Food security activities

4.2.1 Basic agricultural inputs (seeds and tools) have allowed success in resettlement operations.

Seeds and tools have been key component of post emergency operations in Cambodia since the beginning in the numerous repatriation phases (1992-1993, 1997-1998,1999). Providing some domestic equipment and house-building materials, seeds and tools have allowed new settlers to clear land and prepare their first rice and garden crops.

More recently, in former Khmer Rouge areas, where people used to live in the forest or in newly opened areas (such as in Preah Vihear) with very limited access to vegetable seeds, the provision of vegetable seeds has permitted them to balance their diets. For instance, the CRF project in Anlong Veng distributed carrots and pumpkin seeds (rich in Vit. A) which were not found there before the project. Rice seed banks have been organized by some ECHO partners (HI, AAH) allowing to extend the effects of the short term assistance provided.

At the present time, when most re-settlement operations are over, most returnees and IDPs have settled in a piece of land and have received some support. The provision of rice seeds is justified as a short-mid-and long term approach to fight malnutrition or as an input in cases of disaster providing needed rice seeds to replant after a flood or a drought have ruined rice crops.

4.2.2 FFW is often not used due to time and technical constraints

ECHO has been financing Food For Work activities since the beginning of their intervention in Cambodia. In Bantey Meanchey, one can see ponds that were build with ECHO funds in 1994-1995. (FFW-built rural roads cannot be seen as they often have already deteriorated).

At the time of implementation, short time impact of FFW was sought. It was a way to provide food to returnees and IDPs. Not much attention was given to the long term impact; as a matter of fact, several FFW infrastructures were not used after their construction.

At present, FFW is less and less used by NGOs to construct infrastructures in rural areas. Some of the reasons given were the following:

- Work done by food for work is usually poor quality; FFW roads are not well compacted and erode after a short time.
- FFW is not compatible with time constraints; ECHO projects being short term, it is often necessary to find some quick way to have an infrastructure functioning.
- FFW-built infrastructures end up being more expensive than machine-built infrastructures.
- FFW requires more organization, more time and are not so easy to plan, especially when people also have to work their fields (in the rainy season).
- Food is no longer a sufficient incentive to attract people.

Considering that ECHO now allows projects of up to 12 months, NGOs should be invited whenever feasible to use FFW as a way of integrating local population in the building of ECHO financed infrastructure (rural roads, ponds). Cash-for-Work should indeed also be considered as a way to reduce the logistical costs incurred in the distribution of food; cash is likely to be more welcome by the local population and can avoid possible negative side effects on the local price of rice.

4.2.3 Small irrigation.

In the case of Cambodia, whenever possible, the construction of small ponds using FFW is a good way to have a quick impact (by using FFW) and a longer-term impact (water used for irrigation or for raising fish). When promoting community ponds, project designers should bear in mind that carrying water for the irrigation of gardens is a burden that will probably fall females and children. Appropriate ways of transporting (or pumping) pond water should be used to avoid this negative effect.

Table 8: Time impact of ECHO food security activities in Cambodia

ACTIVITIES	Immediate impact	Short-term impact	Medium-term	Long-term impact
		(1-3 months)	impact (3 m to 1 y)	(more than 1 year)
Food For Work	X	X	X	X
Integrated farming		X	X	X
Vegetable seeds		X	X	
Fruit trees				X
Rice seeds			X	
Rice seeds and banks			X	X
Distribution of		X	X	
chicken, ducks				
Distribution of pigs			X	
Cow banks				
Irrigation ponds	<u>-</u>		X	X

4.3 Impact of rural roads.

Demining and roads are often the base intervention that allow the construction of water points. Roads as such have a huge impact on access to services and on the safety of the population while fetching water. However, the construction of rural roads have tended to attract new residents that may be at risk if the surrounding (not only the roads) have not been demined.

Impact, recommendations:

Watsan

- Impact would be increased through the distribution of needed equipment as part of emergency watsan activities.
- Sanitation should be given high priority in slum areas.

Food Security

- Whenever possible, FFW, or Cash for Work should be preferred over machine work
- Activities that provide a quick and lasting impact should be favored.

Demining and rural roads.

- ECHO should continue to finance mine clearing operations to improve access to basic services
- Funds for rural roads should be provided on a exceptional basis, where other funds are not likely to be mobilized.

5 SUSTAINABILITY, LRRD ISSUES AND EXIT STRATEGY.

5.1 Sustainability

5.1.1 Social engineering for the proper use and sustainability of ECHO watsan systems and services.

Social engineering includes all training and mobilization of communities that is necessary to ensure the proper use and the sustainability of systems and service provided with ECHO funding.

As a matter of fact, rural areas of Cambodia have been left with thousands of non-operational water points with malfunctioning often caused by a lack of interest and maintenance of them by the local population. ECHO interventions being often located in poorly structured remote areas (resettled villages without poor social ties, war-affected areas with frequent family rifts) that are less exposed to national health campaigns, calls for concerted social engineering efforts to be considered as part of the emergency package set up to provide physical equipment and infrastructure.

Social engineering in line with the provision of infrastructure should have the three following objectives:

- Embed the services and products in the local context ensuring the ownership of the equipment by beneficiaries
- Ensure the proper use of the equipment provided (use and repair of wells, hygiene around the water point)
- Ensure the proper use of the services (water use, water saving, hygiene awareness)

Since the context may vary in different areas, the level of social engineering needed should be left for the partner to decide; if necessary, it should be complemented with local information and local expertise. In general, social engineering cost were found reasonable, between 10% to 20% of the hardware costs.

Table 9: Ratio of social engineering costs over technical engineering costs of some ECHO projects.

Projects	<i>Rate</i> (1)
ZOA Poipet	23%
ZOA Samrong	12%
CARE Ampil	23%
AAH Preah Vihear	19%

(1) This rate was calculated by dividing the social engineering costs by the drilling costs in the ECHO contract.

The results and efficiency of the social engineering can only be measured by conducting a baseline survey (at the beginning of the project) and to follow up with a KAP (Knowledge, Attitudes, Practices) survey at the end or after the project in completed.

5.1.2 Community participation and some form of cost recovery/cost sharing essential for durable service.

Free humanitarian assistance has failed to fit with the conditions of sustainability of infrastructure (as well as creating dependency). Studies have proven that communities are likely to better take care of infrastructure in which they have invested --whether labor or cash. Cost recovery (or cost-sharing) systems have been put in place by most ECHO partners except for rural roads (only HI has put in place a system that charges trucks tolls with the involvement of a local pagoda and it seems to work). This should be encouraged and resources realized should be invested in maintenance activities.

5.1.3 Management and maintenance of water points.

All NGOs have put in place elected water point committee (3 to 5 members), have provided technical training at village level (to fix pumps) and offer tool kits with basic spare parts. Only two NGOs have arranged that some spare parts (including those for deep pumps) be available at provincial level. However, considering the high price of spare parts of deep pumps, it is likely that additional follow-up will be needed to guarantee the use of these ECHO funded pumps.

Water points have been located in public or private places according to the NGO policies and community preferences. Recent studies (PRASAC DWS survey, Kosan 2001) have shown that the location of an infrastructure has a great effect on sustainability. Water points located in a private area (provided that this private area has been contractually offered for public use) are likely to be better maintained than infrastructure located in public areas (the owner of the corresponding land usually enjoying a greater benefit --social or economic-- of the water point is more keen to ensure its good functioning.

Sustainability, recommendations:

- Social engineering is to be considered as a mandatory component of ECHO water projects.
- The strategy to apply it can be left to the NGO to decide fitting it to the characteristics of the concerned area
- Further assistance and follow-up will be needed to guarantee the sustainability of ECHO funded water pumps.

5.2 LRRD issues and Exit strategy

5.2.1 Newly opened areas are now ready for development projects.

The tremendous work done by ECHO partners to open up areas has provided them with basic infrastructure (roads, water), mines cleared, support to local structures (VDCs, CDCs). In short, these projects have made local populations eligible for longer development support. In some cases (ZOA in

Oddar Meanchey, AAH in Preah Vihear), ECHO partners have embarked themselves in longer development projects with EC funding (Food security budget line, B7-6000) and, so far, have encountered no major problems in the implementation of their respective programs.

In this context, the Head of the EU Delegation in Phnom Penh expressed great interest in the upcoming ECOSORN project that targets the same areas as ECHO.

Additional funding might be available through the EU funded EFNP project in Battambang, and the ADB funded CRDP program (Cambodian Rural Development Program, Bantey Meanchey, Battambang, Siem Reap) that will finance public infrastructures, roads and irrigation.

5.2.2 NGO partners have abilities to switch from emergency type activities to development type activities

At least four ECHO partners, HI, CARE, ZOA and AAH have the ability to prolong and transform ECHO short term activities into long term programs. They all have an extensive experience in such programs, and are ready to invest by themselves to cover gaps. These NGOs and their projects should receive priority by EU state members and the EU system to implement future projects. In that respect, the ECHO TA and the E.U Delegation should serve as intermediaries between the ECHO partners and likely EU donors.

5.2.3 Think and prepare Exit strategy.

In order not to leave the population in the cold when ECHO funds are used up financing the initial steps of what will be a long-term project, ECHO partners should be asked to propose their exit strategy in the proposal and a review no later than together with their first Interim Report; they should also make this strategy clear to their local partners, counterparts and beneficiaries in order to avoid unfulfilled expectations.

LRRD, recommendations:

- Whenever applying for support for rehabilitation projects from ECHO, partners should clarify their exit strategy.
- ECHO assistance has made people eligible for development type of interventions; the EU system should be mobilized to provide assistance in these areas.

ANNEXES

Tables of OVIs Map of watsan projects