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**Fact Finding „Sustainable Industrial Estate Development in Vietnam“  
for the Small and Medium Enterprise Development Program (SMEDP)  
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**Report on the major findings and recommendations of two workshops and 4 site visits  
taking place April 23rd to 25th, 2007 in Vietnam**

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## Glossary

EU	European Union
GHK	Good Housekeeping
GTZ	Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
IA	Industrial Area
PET	Polyethylenterephthalat
PU	Polyurethan
PVC	Polyvinylchlorid
SMEDEC	Small and Medium Enterprises Development Support Center
SMEDP	Small and Medium Sized Enterprise Development Programme
SMIA	Sustainable Management of Industrial Areas
SWTP	Sanitary waste treatment plant
VND	Vietnam Dong
VPSSP	EU-Vietnam Private Sector Support Programme

## **1. Tasks of the fact finding mission**

The mission took place on behalf of Ms. Angelika Hutter from the GTZ Small and Medium Enterprise Development Program (SMEDP) in Vietnam.

The fact finding mission took place from April 23<sup>rd</sup> to April 25<sup>th</sup>, 2007.

Objective of the mission is to introduce stakeholders to the concept of Sustainable Industrial Estate Development, identify the main challenges in industrial clusters and industrial estates in Northern Vietnam, to identify possible fields of action on how to improve the situation and to propose a set of actions to be taken by SMEDP and the EU-Vietnam Private Sector Support Programme (VPSSP).

The following report contains the main findings of these workshops and site visits.

The programme of the fact finding mission has been the following:

April 23<sup>rd</sup>, Hanoi:

Meeting between the experts and Ms. Angelika Hutter and preparation of the workshops.

April 24<sup>th</sup>: Hung Yen Province

- 1) Half-day workshop on the GTZ offer for Industrial Estate Development and Craft Villages for Representatives of the Department of Planning and Investment, Industrial Zone Management Board, People's Committee and Representatives of different Craft Villages. For the programme of the workshop see Annex 1
- 2) Site visits to one industrial zone and one craft village (plastic recycling)

April 25<sup>th</sup>, Hai Phong:

- 1) Half-day workshop on the GTZ offer for Industrial Estate Development organized by the EU-VPSSP
- 2) Site visits to one industrial zone and one craft village (furniture production)

## **2. Results of the workshops and the site visits**

### **2.1. Results of the Information Workshop in Hung Yen Province**

Presentation on the GTZ offer for sustainable industrial estate development. Approximately 35 representatives of the Department of Planning and Investment of the province, Head of Industrial Zones Management Board, People's Committee, and Management staff of adjoining districts, representatives of craft villages participated in the workshop.

The main results of the discussion after the presentation of the GTZ offer on industrial estates and craft villages were the following:

- Environmental aspects in industrial development are becoming more important in Vietnam
- There is a necessity to improve the present environmental situation in four craft villages due to high pressure from the central government
- There is in general a high interest in Eco Industrial Development approaches although the causes for this high interest remained somewhat foggy
- A high interest for activities covering a wide area of environmental services was formulated. This interest has still to be specified and prioritized.

### **2.2. Findings of the meeting with the developer of the Industrial Estate Pho Noi A**

Participants: Industrial Estate Developer Hoa Phat, Industrial Estate Management Board, GTZ SMEDP, GTZ HQ

The park makes in general a good impression. Roads, green areas, storm water drainage and electricity supply seem to be working well. The industrial estate is located on the main road between Hanoi and Hai Phong and consists of around 390 ha of land of which 66% are already occupied. The distance to Hanoi city centre is around 30 km, the distance to the deep sea harbour around 60 km, the distance to the international airport is around 60km and to the provincial capital 40km.

At the moment 74 companies are located inside the park. 28 of these companies have already been located in the area before the developer took over his work in 2004. The fact that these companies already established a certain status quo in the area makes clustering complicated and leads to conflicts between the estate management and the already existing companies. Furthermore, the existing companies (or some of them) refuse to pay for additional services and to adapt to the systems and services provided by the developer. Out of the 74 companies, 31 are owned by foreign investors. More than half of the international companies are Korean, followed by Japanese, French and US American owned companies. The companies located in the industrial estate are from the following sectors: Steel, Automotive, Ceramics, Garment, Animal food, Machinery, Automotive etc. The industrial estate is not focussing on a special branch, but admits companies from different branches. The developer is leasing out the land to interested companies and is responsible for the management of the site (including waste, waste water and infrastructure). All administrative procedures and the admission of the companies into the industrial estate are taken over by the industrial estate management board.

The developer established a water supply company supplying 1200m<sup>3</sup> of fresh water to the companies. The water is tested monthly. From July on a water treatment plant shall be operational. All the new companies are connected to the drainage system. However, there is a potential for conflicts, because the “old” companies do not want to pay for their connection to the drainage system. Companies have to pay a fee on the amount of 80% of their total water consumption. This fee is higher than the fee for fresh water per m<sup>3</sup>. The amount payable per m<sup>3</sup> was not specified. Since the system is not operational yet, it will have to be seen if the companies are willing to pay for the discharge of their waste water. There are two different drainage systems for waste water and rain water. The rain water is discharged directly to the river. The companies have to provide information on water and waste quantities. If there is the impression that data may be wrong the developer may investigate (which seems unlikely). Waste water has to be pre-treated on the company site. The waste water quality will be checked on a regular basis by the local authorities. The developer assured that as soon as the waste water treatment facility is installed and a company will not comply with national regulation on waste water, the company would be cut off fresh water supply, until the waste water complied with the national standards again.

Solid waste has also to be paid per m<sup>3</sup>. An external company is commissioned by the industrial estate developer to pick up and recycle the waste of the industrial estate. The external company is licensed by the government. The information on recyclable materials if and how they are collected and for what price remained very unclear so that there is a big question mark how the re-usage and recycling of materials is working, if at all.

Air pollution is not controlled. Companies have to get a business license to be obtained by the ministry of environment and have to give information on air pollution. Once the business licence is provided, further information is not requested by the authorities and no other monitoring takes place. There is only one electricity provider in Vietnam. All the companies located inside the industrial estate have to do their own contracts with the governmental authority responsible for electricity supply.

There is no regular communication between the developer and the companies inside the park. Since the establishment of the park, only two general meetings for all companies have been conducted. However, the newly appointed head of the estate management visits companies one by one if necessary (which seems not to have been the case so far).

The developer is currently considering the establishment of an industrial estate fire brigade inside the industrial estate. The local authorities already decided to locate some of their national fire men inside the industrial estate.

The relations of the industrial estate with the people’s committee and the surrounding communities were described to be quite good. However, some of the farmers had to be relocated to be able to build the industrial estate and complained that they don’t have any employment opportunities left. To make sure that they will be able to further be integrated into the region, locals will be given priority when hiring staff for the industrial estate. Environmental concerns have not been raised by the population.

In each province a management board exists that is responsible for all the industrial estates that exist in the province. The government is currently implementing a decree that is defining the role and the regulations for the industrial estates.

Information has been gathered by interviewing only few stakeholders and short site visits. To get a clear picture of the situation, more detailed site visits as well as more extensive interviews with the companies, local authorities and surrounding communities are required.

### 2.3. Issues for improvements in the industrial estate Pho Noi A

(blue: priorities of the estate management highlighted at the meeting)

Area of improvement	Possible actions to be taken
Improve the relationship with companies established before the developer took over the estate management	Moderation of the process
Waste water treatment	To get the waste water treatment plant operational (recommendations on the design), maintaining the infrastructure, if required ensure pre-treatment in companies, ensure that all the waste water is sent to the SWTP, train operators, calculate fees
Rain water harvesting / rain water effluents	Rain water is discharged to the river presently. It has to be made sure that the rain water system can be disconnected from the general drainage (in case of pollution with oil spillage etc.).
Waste disposal	Analyse the present system, further possibilities for recycling, but particularly ensure organized disposal of remaining waste fractions and hazardous waste.
Vocational training centre	Assisting in setting up training particularly for people in the surrounding of the estate
Hiring facility for new employees	
Fire brigade	Training, identifying of potential risks, identifying needed equipment and know how
Risk management	Identification of types and quantities of dangerous substances
Regular forum between estate management and company representatives	Establish a communication forum, moderate the process
One-stop approach	How does the one-stop approach work? Is there room for improvement? Which kind of services could be included into the one stop approach?
Green areas	Design of green space, trees, resting places for workers, parking facilities
Maintenance Management	Training
Marketing	Only part of the estate has been sold so far. Marketing strategy?

The issues mentioned are not based on a thorough analysis of the facilities and services of the industrial estate but based on a discussion with the estate management and a short site

visit. For prioritizing issues, a more thorough analysis of the estate is necessary and the priorities need to be discussed with the estate management.

#### **2.4. Proposed activities for the industrial estate Pho Noi A**

- 1) Moderate a process to find solutions for the companies which have been set up prior to the industrial estate management
- 2) Set up a communication forum for companies to improve communication between the companies and the industrial estate management and to find out suitable instruments that are working and of interest for the industrial estate. Until now only very general information on the industrial estate is available. There is no precise information on the existing problems. A first step might be a workshop with the different stakeholders of the industrial estate to find out about problems of the different parties.
- 3) Training for local communities (job qualification)
- 4) Support in establishing waste water treatment plant, including training
- 5) Training and assistance in setting up the emergency response system
- 6) Implementing the SMIA (Sustainable Management of Industrial Areas) approach

#### **2.5. Findings of the meeting with representatives of the Khoai craft village on recycling and the following site visit**

To improve the situation in craft villages is a pressing issue for the province. Overall there seems to be high interest to improve the situation. Following a decision of the central government, the situation in existing craft villages has to be improved until the end of this year. Relocation is one of the favourite options of the Vietnamese side. However, relocation does only make sense if the existing problems are tackled before relocating the companies.

In the recycling village that was visited by the fact finding mission, around 600 households or around 2500 people (1500 of them directly belonging to the households inside the village) are directly involved in recycling plastic. Altogether around 4000 people are living in the village. They mainly produce plastic bags, plastic tubes, chairs, tables, raincoats and nylon bags. The material is collected from all over North Vietnam and usually bought from scavengers, plastic collectors but also companies.

The village specialized on the recycling of plastic 20 years ago and is nowadays processing around 100 to 150 tons of plastic per day. None of the people in the village is having a technical background in plastic production. They classify the plastic based on visual aspects and experience.

There are two main processing chains inside the village: around 300 companies are processing the raw materials; the other 300 households are producing the final products.

The process starts with cleaning the plastic (either manually with running water or in tanks); afterwards the plastic is crushed into small pieces. This raw material can then be used for the production of new plastic products. Therefore, it has to be smelted (normally either with electricity or charcoal). The smelting process normally takes place in an open system.

The village recycles PET, PU as well as PVC. However, only around 7 companies are active in the PVC business. Whether this is a potentially harmful business has to be clarified. Possibly it may be hazardous due to the chlorine content of PVC.

Non-product output during the production process consists of around 3%.

Up to 30% of the raw material is not usable. The average of non-usable raw material is around 5-7%. The plastic that cannot be recycled is disposed in landfills close to the village.



There are two official dumpsites around the village. The waste is burned on these landfills. After the burning process, metal remaining in the plastic is collected by scavengers. For household waste the same dumpsite is used as for the plastic. There is no waste management in place neither for plastic wastes nor for household wastes. However, in addition to the two dumpsites, around 15-20% of the waste is dumped wildly in a larger number of spots around the village.

Despite the environmental problems caused by the plastic recycling, it is still seen as a good business. To get the pollution under control it is planned to relocate some of the bigger companies out of the village.

## 2.6. Issues for improvements in Khoai craft village

Area of improvement	Possible actions to be taken
Waste	Waste is seen as the major problem by the businesses located inside the plastic village. Possible actions can be: Setting up a system for organized waste collection and waste disposal, awareness raising of the villagers, setting up a fee system for waste collectors. Identifying and organizing a managed dump site. Discontinue burning. One possible solution for the waste of the village might be co-processing of the waste in a nearby cement company (around 40-50 km away). However, it is doubtful that the daily volume might be sufficient for a cement company.
Potable Water	The waste water of the plastic recycling process is directly discharged in the surrounding ponds and the river. Drinking water comes out of a well, 45 m deep. This water has never been tested. It is not sure whether it is clean or not. Action: Water testing and if necessary provide safe drinking water and setting up a system for monitoring quality.
Storage of raw materials	The plastic is stored on open ground in front of the buildings which leads to a further contamination of the raw material and takes plenty of space. A better organization of the storage could decrease the costs for pre-treating the raw material.
Cleaning of plastic	Plastic is washed in small basins. Hygienic problem. High water usage,

	high amount of waste water
Storage of product	On the ground (soil), leads to a further contamination of the final product, support on how to store products is needed
PVC	Possible health hazards due to chlorine content. Assessment whether safe recycling is feasible
Sorting of plastic	The input material may be polluted by oils and chemicals. Technical know how on different sorts of plastic might be necessary
Reduction of unqualified products / reprocessing and waste creation	Increased quality management is not only a way to increase productivity and effectiveness but also to reduce raw material and energy consumption and waste creation

GTZ can offer Good Housekeeping (GHK) and community dialogue instruments for craft villages as a first step. As a second step SMIA for craft villages might be thinkable.

## 2.7. Proposed activities for Khoai craft village

- 1) Identifying waste streams. Identify a secure site for waste dumping. Organize a simple waste collection system. Establish a waste management fee and fee collection system.
- 2) Check fresh water supply. If necessary establish a system to provide good quality water, establish financing system.
- 3) GHK as a measure to reduce waste and to increase productivity and profitability. This would also tackle the waste problem from the producer side.
- 4) SMIA for craft villages.
- 5) One possible solution for the waste of the village might be co-processing of the waste in a nearby cement company (around 40-50 km away). However, it is doubtful that the daily volume might be sufficient for a cement company. The suitability for co-processing could be checked by the GTZ-SMEDP.

## 2.8. Results of the Information Workshop in Hai Phong

Workshop with representatives of Hai Phong department of planning and investment, department of natural resources and environment, different Industrial Zones Management, Business Association with a total of about 20 participants. Organizer of the event was the EU-Vietnam Private Sector Support Programme.

Hai Phong is a city of about ca. 3-4 Mio. inhabitants located at the sea, about 90 km from Hanoi. It has a deep sea harbour and is a dense industrial agglomeration. The road between Hanoi and Hai Phong has enterprises and industries of all sizes and branches all along. Existing estates and clusters created and are still creating a lot of problems which have to be solved in the near future.

In the area around Hai Phong two kinds of industrial parks exist. On the one hand there are big industrial estates and on the other hand several small industrial zones in very populated areas inside the city centre. Authorities cannot move old companies out of the city centres

because of a lack of finances and land. Additionally, there are a number of craft villages with big problems. One village is concentrating on furniture, a second on collection of waste and recycling. The authorities want to keep the craft villages because they give employment to the local population. They shall be developed further and government wants to give support to solve environmental problems. Local communities do not have any other means for income. It is very difficult to shift to new businesses.

## **2.9. Findings of the meeting with the developer of Vinh Niem Mini-Industrial Park in Hai Phong**

The industrial estate has a size of 14ha and consists of 24 enterprises, mainly SMEs. Approximately 3000 employees work inside the industrial estate. The branches inside the industrial estate are: Food processing, composition of plastic, timber processing, seaweed processing (agar-agar), furniture. The zone was created in 2000 and is located in an urban area. Factory owners and workers are quite happy about the location because it is close to the city centre. However, the neighbourhood started to complain, although they supported the establishment of the zone. They expected to work inside the industrial area, therefore they were very cooperative. The majority of the companies moved to the zone bringing their old work force or some new staff from the city centre. Jobs for the population in the surrounding communities were not created. Consequently, the communities felt that they were not benefiting from the industrial zone and started to complain about the industrial area. To attract companies to the industrial area, the industrial estate as well as the companies moving to the estate were supported by the government financially and were promised very favourable (cheap) conditions. The developer did set up a central waste water treatment plant. Companies were requested to pre-treat their waste water which they did not do. Additionally, companies did not pay for the waste water treatment plant. The developer was not able to finance the waste water treatment plant. It was shut off and currently serves as a fish pond. The main complaints of the local communities regarding the industrial estate are the following: waste water, odours, air pollution in general (which is caused because of a lack of green space and trees in the view of the developer).

The contributions of factory owners are low. It is very difficult for the developer (and manager) of the estate to enforce the payment of maintenance fees by the companies. The developer is also not able to follow up the business activities taking place inside the industrial estate. Companies describe a certain business in the application form for the industrial estate but are now working in a different area. Changes in business activities or processes are taking place without informing the estate manager. A clustering of the industries is therefore not possible.

The sewage treatment plant had to be closed because companies did not pay any fees. The locators presently pay 3000 VND per m<sup>2</sup> per year for rent and as a contribution for basic services. 15.000 VND would be really needed to get a return on investment on the infrastructure investments of the developer and to run the basic services. Presently there is no incentive for the investor to maintain the estate. There is an ongoing discussion with the local authorities and a proposal that the local authorities pay back the investment costs to the developer and take over the management. The land of the estate would be transferred to the group of enterprises without any management. From the side of the local authorities a number of departments would be responsible for different services and it can be expected that none of the departments will feel responsible for the more general issues on infrastructure maintenance or the general management of the industrial estate. In this case a deterioration of the existing infrastructure can be expected. Local authorities gave incentives and provided extensive support to the companies that were willing to move out of the city centre and inside the industrial estate. However, they did not consider how to manage the estate after it was set up. The estate developer expected to get a pay back on his investment including some profits and to get fees for the management of the industrial estate. However,

until now neither the pay back of the investment nor the fees for the management of the industrial estates could be realized. Authorities are not responding to the requests from the estate developer how this situation can be changed. The developer so far does not have the right to collect any fees. But even if the right to collect fees was granted by the local authorities, the developer would not expect the companies to pay the fees, since very favourable conditions were promised by the authorities. Either the authorities have to take over some of the costs or the developer must get a right to enforce payment. The developer sees this estate as an experience from which other estates have to learn to be much more careful in the preparation phase and describing the tasks and responsibilities of each of the involved parties. They would have the possibility to sue the authorities but do not want to take this option because they fear that business will be lost in the future. The developer now follows an approach to convince the local authorities of the necessity of a long term management inside the industrial estate. The developer would be willing to share his experiences so that other developers can learn from his experience (showcase for conference on industrial estate development in Vietnam?).

The waste water treatment plant was visited. The waste water treatment plant consists of a filter (gravel), small sedimentation basin, and a round basin whose purpose remained unclear. In principle it consisted only of a round concrete basin with a pipe coming in and out. If a biological treatment was planned remained unclear. The developer clearly had no idea of the functioning of a waste water treatment plant. However, the plant was never operated because the water at the beginning was too polluted and payment for waste water treatment was never received. The developer declared that he is willing to redesign, modernize and enlarge the waste water treatment plant in case that he sees a chance to be able to collect fees to receive a return on investment and management costs.

The round tank is used presently as a fishing pond and was helpful in a fire close by. There, a plastic processing plant caught fire. The plant had not registered the process and there was no water available to put out the fire. Therefore the water from the waste water treatment plant pond was used.

**2.10. Issues for improvements in Vinh Niem Mini-Industrial Park**

Area of improvement	Remarks / Possible actions to be taken
Waste. No central waste collection. Low willingness to pay fees.	Complaints by neighbouring communities.
Waste water. Waste water is not pre-treated, waste water treatment charges are not paid. SWTP is outdated and not operational	Complaints by neighbouring communities, development of a financing scheme for the treatment plant
Odours	Complaints by neighbouring communities
Central management not secured. Central management does not receive fees and does not get sufficient pay back on initial investments	
Safety and health risks unclear. Insufficient information on processes and chemicals handled within the estate	
Insufficient emergency response system	
Complaints of neighbouring communities	Community Action Programme, possibly training

The main problem that has to be tackled before taking further actions regarding the processes inside the industrial estate is the relationship between the local authorities and the industrial estate management. A workshop between the different stakeholders might be interesting to define possible management schemes for the industrial estate and to clarify the future subsidy policy of the government towards the companies located inside the industrial estate.

### **2.11. Proposed activities for Vinh Niem Mini-Industrial Park**

The willingness of companies to contribute financially to environmental or other services seems to be very low partly because local authorities promised low or no fees and charges. A more detailed assessment of issues of concerns of the enterprises, the developer and the concerned institutions should be made. SMIA could be one part of it but also legal compliance, check and control activities of local authorities and a clear definition of responsibilities and financing mechanisms possibly in a joint workshop

### **2.12. Findings of the meeting with Kha Lam Carpentry Village**

In the craft village about 100 households are producing furniture. The production is within the same buildings as the living quarters. The raw material is usually plywood for the furniture corpus and ornaments whereas the feet are from hardwood. The wood panels are roughly cut, glued, cut into form, sprayed with primer, dried, sanded and lacquered and dried again. The air is thick with dust and the smell of solvents. The floors are uneven, the material concrete or possibly also earthen. Resin and oil based colours are basically used for lacquering. Lighting is insufficient. The lacquered surfaces (at least of 2 samples viewed more carefully) were uneven and also the density of the colour was irregular. The plywood is uneven, possibly because of bad quality, possibly because of the handling during transportation and storage. In the 2 households visited numerous paint bins containing dried paints or some remains were standing around. The smell of the solvents could be smelled several hundred meters away from the households while visiting an open field (planned to be the site for relocating the companies). Products of the village are sold to shops and traders all over North Vietnam. The commune wants to relocate the companies. A site was identified and is available. Basic infrastructure was started to be set up (foundation for roads with gravel, poles for the supply of electricity). The infrastructure shall be finished in about three months. The site has a size of 3 ha of land which is provided by the local government. In future, the businesses have to pay rent for the land and fees for services. In addition, they have to pay for setting up buildings for their new enterprises. The government contributes 60% of the costs and the households have to pay the remaining 40%. This 60% contribution of the government consists of the land and supply of the infrastructure (roads, drainage, electricity supply). This portion is still too high for most of the businesses. Presently only 1/3 of the enterprises is willing to relocate and to pay for it. From the remaining businesses the commune demands a change of processes of their painting system, otherwise they are threatened to be closed down. In this case, social problems can be expected since there are no other sources of income available. On the new site a special painting shop shall be erected where all the businesses have to paint (or have paint) their furniture. The enterprises will have to pay for waste water and waste. The commune also proposed households to erect a workshop by combining what have been two or three different businesses previously. The zone will be managed by a cooperative of the workshop owners of the zone. This cooperative will also have the right to set and collect fees. The government will not interfere in either setting the rates or in the collection of the fees.

When asked about the production costs, share of labour, raw materials, etc. it was only answered that labour is cheap. No figures about the real production costs have been found out by the interviewers.

### 2.13. Issues for improvements in Kha Lam Carpentry Village

Area of improvement	Possible actions to be taken
Transport, storage, processing of raw materials	Non-product output seems to be very high. GHK suggested.
Outdated and inappropriate tools	Advice on replacement of tools, handling, maintaining and storage of tools
Solvents, oil and resin based lacquers and other colours and process materials	Analyse potential for healthier and environmental friendlier replacements
Waste management particularly of paints, solvents, resin and wood which has been treated with paints and chemicals	GHK suggested
High risk of fires	Fire fighting equipment / fire response system
Assess and redefine system of benefits to assist companies in relocation	
Bad lightning by dust and solvent content indoor, Wood deformed by bad floors	Recommendations in designing work shops which allow good working conditions
Assess and recommend actions to improve the design of the new site	

### 2.14. Proposed activities for Kha Lam Carpentry Village

- 1) Good Housekeeping (GHK) module to improve the production processes and tackle the most pressing problems
- 2) Advice on improvement of working conditions (could also be part of the GHK)
- 3) Advice on risk management and fire response
- 4) Waste management
- 5) Redesign new site and assess the potential to move additional households, eventually with the SMIA approach

## 3. Proposal for follow up activities

For the follow-up, two different scenarios are thinkable. One would include some initial measures to tackle the most pressing issues defined during the mission, the second approach would be a more strategic one to avoid solutions that only serve one special industrial estate and do not guarantee the sustainability of our activities.

In both cases we would suggest to do a follow-up conference on national level to disseminate the results of the activities on industrial estate development.

Both strategies are mainly based on possible activities under the GTZ programme. How the EU programme can be involved in these strategies has to be further assessed by GTZ Vietnam.

### **3.1. Strategy A**

Provision of concrete measures following our first analysis during the mission in Vietnam. For concrete information on activities see proposed activities.

Some tangible results for the concerned industrial estates and craft villages could be reached by following this strategy.

This would lead to isolated solutions for some specific cases that could serve as demonstration projects for GTZ activities. However, these solutions would not be replicable and the sustainability of these actions would be questionable.

We would follow this strategy only in case that a very limited budget is available for activities in sustainable industrial estate development. In case that this strategy is followed, an in-depth analysis of the concerned industrial estates and craft villages would be a pre-condition for further activities.

A national conference on sustainable industrial estate development and environmental problems in clusters should be organized to disseminate the project results. Content of such a conference could be the analysis of the situation in the respective industrial estates, situation of developers in Vietnam - case study etc.

Time frame for such a visit would be of around 6 months.

Resources needed:

- 1 international consultant (for in-depth analysis of industrial estates and clusters and for training-cum-consultancy on sustainable management of IA and resource efficiency at company level ) for three missions + follow up (around 8 weeks)
- 1 local consultant for continuous support of the international consultant, follow-up of implementation, preparation of the follow-up conference etc.
- 1 local trainer-consultant for GHK in the craft village

### **3.2. Strategy B**

Strategy B would be the strategy recommended by the team of the fact finding mission. In this case, a wider approach using the SMIA (Sustainable Management of Industrial Areas) method for developing the industrial estates and craft villages in a more sustainable way should be used.

Two different SMIA cycles each of them including 4-5 (when nearby and moderate in size this figure also can go up to 8) industrial estates/ craft villages for Hung Yen province, as well as the training of trainers for the SMIA method are recommended.

To prepare the SMIA training a local consultant who will prepare the SMIA application is necessary. This local consultant should be supported by an international consultant. The consultant's task will be the identification of suitable craft villages and industrial estates, a first institutional analysis for industrial estate development, to ensure that industrial estates and craft villages are committed to participate in the SMIA cycle and define suitable consultants for the SMIA training. Preparation time depends on their access to IA management and companies. Experience shows that this takes at least 3 months.

Afterwards two SMIA cycles should take place (one for the craft villages and one for the industrial estates). Local trainers-consultants for SMIA will be trained during the SMIA application.

One SMIA application consists of 4 different trainings plus intermittent network meetings and follow-up visits by local trainers-consultants, the first training being longer as a participative sustainability diagnosis would be carried out which would constitute the basis of problem identification and prioritisation by relevant actors on which case analysis, measures development and action plans would be based and support to implementation of change.

Apart from the SMIA cycle, GHK application in the different clusters should take place and a pool of international experts for pressing issues inside the industrial estates should be available. The pool of international experts should consist of experts in the area of risk management, waste management, institutional analysis and waste water treatment).

A national conference on sustainable industrial estate development and environmental problems in clusters should be organized to disseminate the project results after the end of the cycles, putting the resulting case studies and testimonials by participating actors from IA and companies at the centre. Content of such a conference could be the procedure, method and possible strategies for dissemination.

Time Frame: 1 year (3 months preparation + 7-9 months SMIA cycle)

Resources necessary:

- 1 local consultant for preparation as well as constant support for the project activities = 1 year
- 1 international SMIA trainer-consultant for 4 missions between 8 and 10 working days + preparation + follow up plus 1 international consultant for mission 1 (ToT elements and sustainability diagnosis)
- 1 local SMIA co-trainer (Ms.Hoan from SMEDEC, if she is not available, then 2 international SMIA-trainers will be necessary)
- Local consultants to be trained as SMIA trainers, as well as for the follow-up inside the industrial estates.
- Experienced local consultants for GHK trainings inside the clusters (2-3 trainings cycles, depending on the number of clusters)
- For the industrial estates: pool of international experts for special pressing issues.

#### **4. Questions still to be answered**

General remark:

- The activities proposed are based on the issues mentioned by the management of the two industrial estates visited, the representatives of the people's committees of the two craft villages visited and short site visits. To come up with a more valid action plan, more detailed site visits are recommended either within a SMIA training or by using the guidelines of the SMIA handbook.

Open questions:

- What is the objective of the project activities? New component inside the project or just some punctual actions regarding sustainable industrial development?
- What is the time frame? When do activities have to start latest?
- How big is the budget available for activities?
- What local resources exist? How much of these resources would be available for the project?



## Annex 1 Programme of Workshop in Hung Yen Province

Block 1: Integrated Industrial Estates	
09:00	<b>Welcome and opening remarks</b>  <i>Angelika Hutter</i>
09:15	<b>Integrated industrial estates- the gtz offer and discussion</b>  <i>Presentation, Johanna Klein</i>
10:00	<b>Brainstorming on main problems regarding the sustainable development of industrial estates in Vietnam and prioritization of main challenges</b>
Block 2: Environmental management for craft villages	
10:30	<b>Coffee break</b>
10:45	<b>Improving the living and working conditions of people in craft villages- the gtz offer and discussion</b>  <i>Presentation, Guntram Glasbrenner</i>
11:30	<b>Brainstorming on main problems regarding the improvement of the situation of craft villages and prioritization of main challenges</b>
12:15	<b>End of half day workshop</b>

## Annex 2 List of Participants “Workshop Hung Yen Province”

#	Họ tên / Full name	Position	Co quan/ Org.
1	Nguyen Van Dung	Specialist	Provincial People office
2	Doan Anh Quan	Director	DPI Hungyen (dept of planning and investment)
3	Vu Quoc Trieu	Chief of Business Registration devision	DPI Hungyen
4	Nguyen Thanh Son	Chief of Externaleconomic division	DPI Hungyen
5	Nguyen Van Cuong	Specialist	DPI Hungyen
6	Tran Thu Thuy	Specialist	DPI Hungyen
7	Bui Xuan Quang	Chief of Infrastructure Construction Division	Department of Construction
8	Nguyen Van Thang	Specialist	Department of Construction
9	Bui Tan Viet	Specialist	DOST (dept of science and technology)
10	Bui Kim Hoa	Specialist	Provincial security and police agency
11	Nguyen Van Thuy	Specialist	Provincial security and police agency
12	Vu Van Minh	Manager	Hungyen Industrial zone estate
13	Pham Thai Son	Deputy manager	Hungyen Industrial zone estate
14	Nguyen Tuan Anh	Specialist	Hungyen Industrial zone estate
15	Pham Xuan Khoa	Specialist	Hungyen Industrial zone estate
16	Vu Quoc Nghi	Specialist	Hungyen Industrial zone estate
17	Nguyen Dinh Cuong	Specialist	Hungyen Industrial zone estate
18	Pham Thi Hoa	Specialist	Hungyen Industrial zone estate
19	Hoang Van Mai	Specialist	Hungyen Industrial zone estate
20	Do Van Viet	Specialist	Hungyen Industrial zone estate
21	Ngo Da Mau	Vice Chairman	Phu Ung District people Committee

22	Vu Van Gian	Vice Chairman	Phuong Chieu District people Committee
23	Tran Van Duy	Specialist	Phuong Chieu District People committee
24	Nguyen Thanh Khuong	Specialist	Phuong Chieu District people committee
25	Do Thi Ninh	Vice manager of economic devision	Khoai Chau District People Committee
26	Nguyen van Hinh	Specialist	Kim Dong Committee
27	Vu Van Dan	Specialist	Tienlu district people committee
28	Le Van Loi	Specialist	Tienlu district people committee
29	Nguyen Van Oanh	Vice manager of economic devision	Hungyen town people committee
30	Nguyen Thi Ly	Specialist	Hungyen town people committee
31	Trinh Hoang Long	Manager	Bac Ninh Industrial zone estate
32	Tran Thanh Hai	Specialist	Bac Ninh Industrial zone estate
33	Bui Binh Trong	Vice manager	Thai Binh Industrial zone estate
34	Pham Quy Duong	Specialist	Thai Binh Industrial zone estate
35	Do Huy Thanh	Vice manager	Nam Dinh Industrial zone estate
36	Nguyen Duy Duong	Specialist	Nam Dinh Industrial zone estate
37	Pham Van Khiem	Specialist	Nam Dinh Industrial zone estate
38	Nguyen Van Han	Vice manager	Ha Nam Industrial zone estate
39	Nguyen Van Minh	Specialist	Ha Nam Industrial zone estate
40	Pham Tri Thuc	Vice manager	Ninh Binh Industrial zone estate
41	Tran van Trinh	Specialist	Ninh Binh Industrial zone estate
42	Nguyen Thanh Thai	Specialist	Ninh Binh Industrial zone estate
43	Pham Van Phuong	Specialist	Ninh Binh Industrial zone estate
44	Pham Huy Dap	Vice manager	Bac Giang Industrial zone estate
45	Hoang Van Duong	Specialist	Bac Giang Industrial zone estate
46	Nguyen Quang Thang	Manager	Hoa Phat Group

47	Tran Van Quang	Specialist	Hoa Phat Group
48	Nguyen Thanh Quan	Vice Director	Pho Noi Infrastructure Construction Company
49	Nguyen Van Sang	Specialist	Pho Noi Infrastructure Construction Company
50	Phan Anh Tuan	Manager	Bridge Inter-Line Leisure Vietnam Ltd, Company
51	Tran Van Cuong	Specialist	Bridge Inter-Line Leisure Vietnam Ltd, Company
52	Hoan Van Van	Specialist	Bridge Inter-Line Leisure Vietnam Ltd, Company
53	Mai Huy Tan	Director	Duc-Viet Company
54	Tran Van Khanh	Specialist	Duc-Viet Company
55	Pham Minh Luong	Vice Director	DONRE(dep. Of natural resource and environment)
56	Nguyen Van Vuong	Specialist	DONRE
57	Nguyen Ngoc Doan	Chief of Small industry	DOI (dept. of industry)
58	Tran Van Anh	Specialist	DOI
59	Nguyen Van Hai	S	DOI
60	Chu Minh Huan	reporter	Hungyen Newspaper
61	Mai Hoan	reporter	Hungyen Television
62	Minh Ket	reporter	Hungyen Television
63	Nguyen Van Thinh	Specialist	MOI(ministry of industry)
64	Pham Thanh Trung	Specialist	MOI
65	Phan Thu Hien	program officer	GTZ
66	Vu Thuy Quynh	Advisor	GTZ
67	Vo Hoang Nga	Advisor	GTZ
68	Vu Thuy Quynh	Interpreter	
69	Angelika Hutter	Senior advisor	GTZ
70	Johanna Klein	GTZ Specialist	GTZ
71	Guntram Glasbrenner	GTZ Specialist	GTZ

### Annex 3 List of participants “Workshop Haiphong”

Họ tên/Name	Chức vụ/Title	Cơ quan/Organization
Le Thanh Son	Vice Director of DPI cum Director of VPSSP	HP Department of Planning & Investment
Nguyen Hoang Hiep	Deputy Manager of Tech. & Operation Dept.	Dinh Vu Development JVC
Nguyen Dinh Yen	Manager of Enterprises Management Dept.	HEPIZA
Nguyen Duc Thinh	Manager of Construction Dept.	Doson Industrial Zone JVC
Vu Tru Tia	General Director	Infrastructure Construction & Investment JSC
Bui Thi Loan	Expert	Vinashin - Shinec Project Management Unit
Nguyen Minh Chau	Director	HP Industry Promotion Centre
Pham Van Trung	Vice Director	HP Trade Promotion & Development Centre
Vu Thi Kim Thanh	Expert	HP Trade Promotion & Development Centre
Vu Huu Thanh	Vice Chairman	People's Committee of Kien An District
Vu Thi Thu Hao	Member	Association of Young Enterprises Le Chan Dist.
Le Son	Manager of Environment Dept.	HP Natural Resource Environment Dept.
Nguyen Xuan Truong	Vice Director	BOM Infrastructure Construction of Izs

Nguyen Thi Ngoc	Senior Program Officer	VPSSP HP
Vu Thi Hoa Trang	Junior Program Officer	VPSSP HP
Manh Cuong	Reporter	VN Investment Newspaper
Mai Huong	Reporter	Haiphong Newspaper