



End Review of:
**UNIDO - National Cleaner
Production Center, Sri Lanka**
(LKA 3124-08/048)

Final Report

19 December 2013

**Commissioned by Norad,
on behalf of
The Norwegian Embassy in Colombo**

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PREFACE

The report in hand covers end review ("the Review") of the
UNIDO-National Cleaner Production Center (NCPC) (LKA 3124-08/048),

hereafter also referred to as "the Center" or "the Project". The Review was undertaken in October-November 2013, by a Team Leader from NCG Norway, together with to national experts from Sri Lanka (jointly referred to as "the Review Team" or "the Team").

Such an end review is part of the normal project cycle in development cooperation projects financed by the Norwegian Government and is mandatory as per the project agreement with UNIDO. The Project was assessed based on desk study of written documents, and interviews with NCPC staff and project stakeholders/beneficiaries in Sri Lanka. The fieldwork in Sri Lanka was undertaken during the period 28 October - 7 November 2013.

The report contains an assessment of the project design, assessment of effectiveness and efficiency, in addition to an assessment of prospects of self-sustainability of the Centre post-project.

The Draft Report was submitted 20 November 2013, and the final version was prepared taking on board *some* of the comments from UNIDO and Norad (enclosed in *Appendix 13*).

The Review Team comprised the following members:

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(Mr. Jan Thomas Odegard, NCG Norway undertook the QA of the Review and the report). The Team wants to thank all the involved project partners for their open and kind contribution during the work. Special thanks go to the NCPC administration for preparing the fieldwork and meeting itinerary.

19 December 2013

Tore Laugerud

Team Leader

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The conclusions and recommendations in this report are clearly those of the Review Team, and do not necessarily reflect the opinion of the Royal Norwegian Embassy in Colombo, Norad, UNIDO, NCPC or any of the persons and institutions consulted, and are thus not in any way binding for the Project.

LIST OF ACRONYMS AND ABBREVIATIONS

AC	- Advisory Committee
AD	- Assistant Director
ADB	- Asian Development Bank
AR	- Annual Report
APR	- Asia-Pacific Roundtable
BoD	- Board of Directors
BP	- Business Plan
BSc	- Bachelor of Science (degree)
CEA	- Central Environment Authority
CFL	- Compact fluorescent lamp
CIEH	- Chartered Institute of Environmental Health
CL	- Chemical leasing
CNCI	- Ceylon National Chamber of Industries
CP	- Cleaner production
DO	- Dissolved Oxygen (in water)
SCF	- Energy Conservation Fund
ESCO	- Energy Services Company
EST	- Energy Saving Technology
EPL	- Environmental Protection Licensing
EU	- European Union
GiZ	- German Society for International Cooperation ("Deutsche Gesellschaft für Internationale Zusammenarbeit")
GNP	- Gross National Product
GWh	- Giga watt hours
HQs	- Headquarters
HRD	- Human Resources Development
ITI	- Industrial Technology Institute
ISB	- Industrial Service Bureau
JICA	- Japan International Cooperation Agency
LED	- Light-emitting diode
LFA	- Logical Framework Approach
LKR	- Sri Lankan currency (Rupees, also nominated as LKR)
MIS	- Management Information System
MSc	- Master of Science (degree)
NCPC	- National Cleaner Production Centre
NEAP	- National Environmental Action Plan
NERD	- National Engineering and Research Development (centre)
OECD	- Organisation for Economic Cooperation and Development
PEP	- Promotion of Eco-Efficient Productivity
PD	- Project Document
PROSPER	- A project co-financed by Germany, aiming at raising overall awareness on the need and means to implement RECP (see Appendix 2)
Sri Lanka	
QA	- Quality assurance
QPR	- Quarterly Progress Report
RECP	- Recourse Efficient and Cleaner Production
RMB	- Result-based management
LKR	- Rupees (official nomination: LKR)
LTTE	- Liberation Tigers of Tamil Eelam ("the Tamil Tigers")

RT	- Review Team
SCP	- Sustainable Production and Consumption
SEA	- Sustainable Energy Authority
SFT	- Norwegian Pollution Control Authority ("Statens foruresningstilsyn")
SMART	- Specific, measurable, achievable, relevant, timely (indicator)
SME	- Small and medium sized enterprise
SMED	- Small & Medium Enterprise Developers
SWITCH	- EU-supported programme promoting Sustainable Consumption and Production
Asia	(SCP) (across the Asia region. See <i>Appendix 2</i>)
TA	- Technical assistance
ToR	- Terms of reference
UNDP	- United Nations Development Programme
UNEP	- United Nations Environmental Programme
UNIDO	- United Nations Industrial Development Organisation
USAEP	- United States Asia Environmental Partnership
USD	- United States dollars

EXECUTIVE SUMMARY

1. INTRODUCTION

- The Cleaner Production (CP) concept was introduced in Sri Lanka in 1993, and Phase I of the National CP Centre (NCPC) started in 2002, ending in 2009, supported by Norway. Phase II of the support to NCPC ends in December 2013.
- The Review Team concludes that the pre-2009 instability and civil war situation in the north and east has *not* affected the project performance in Phase II (with activities in the west, around Colombo, and in the South).
- The main purpose of the End Review was to assess the impacts of the outputs and outcome of the project activities, and the sustainability of NCPC. Some shortcomings (lack of beneficiary sampling framework and document availability at NCPC) affected the Review, but did not alter the main conclusions.
- Previous reviews of the NCPC include: A Mid-term Review (2006), a UNIDO Country Review (2007), and a Desk Appraisal of the initial Project Document (PD, 2009). Some shortcomings were repeatedly taken up, but never later addressed properly by NCPC.

2. PROJECT DESIGN

- The project logframe is inconsistent and misleading. It varies in different steering documents, both as regards contents, formats and use of terminology. Notwithstanding the fact that the logframe has not been used consistently in the implementation monitoring, this has seemingly neither influenced negatively on the overall implementation of the Project nor created any confusion amongst project management staff.
- The list of outputs and activities formulated (Baseline Survey) are largely sufficient to achieve the formulated outcomes, although some of the output indicators formulated are ambiguous and mostly not quantified from the start (done in the annual work plans).
- The project objectives and partly outputs, with indicators, have however not been used as a direct reference in annual reporting.
- Identified risks were largely adequate, but the issue of self-sustainability for the Centre and mechanisms for financing of costly CP measures in industry were not properly analysed.

3. PROJECT ACHIEVEMENTS AND PERFORMANCE

3.1 Achievements and Effectiveness

- The Project has been rather effective in raising awareness amongst different target groups

(although a strategy is lacking and target values are rarely given). Most participants in awareness raising events were from sectors outside the four key sectors. Using CP success stories actively in marketing has not been undertaken to the extent expected.

- NCPC has experienced delays in production of promotion and information dissemination material. Promotion material is not visible anywhere (neither at Centre, the website nor with beneficiaries). The CP Award ceremonies have however been important in promotion, with many participants but relatively few competitors.
- Of the trained auditors from Phase I, few have been available for services. Less than 15% of the auditors trained in Phase II come from the private sector. CP consultants and auditors have not been monitored or followed up post-training.
- The training to university academics seems to have been very effective, not so to colleges and financial institutions (the later partly outside the control of the Project, due to lack of financing possibilities of CP measures).
- The PD contains a brief Staff Capacity Development Plan. Significant staff turnover has surfaced, partly due to the uncertainty with short-term employment contracts. The Director is a very respected and well-known expert, but only 5 staff (out of 13 professionals) have more than 5 years in the Centre.
- Consultancy and advisory services to industry are key activities of NCPC, but promotional activities have not been given the required priority. Fewer industries than expected have been approached, with the commendable exception of comprehensive audits, which is exceeding the target (including audits as part of the CP training).
- The seemingly lack of demand for CP is partly caused by: reluctance of industries to divulge information to outsiders, the perceived substantial risk of CP investments versus other industrial investments (largely driven by a "push" strategy, through e.g. donor funded projects), and the unfavourable financial framework conditions in the country.
- No systematic monitoring of the impacts of CP in industries has been undertaken, although several positive impacts could be easily observed.
- NCPC seems to have lost focus on core services with the diversification of the portfolio.
- The strengthening and enforcement of national policies related to CP have not been as effective as expected, but clearly due to factors outside NCPC's

control.

3.2 Project Efficiency

- Due to lack of reliable data made available to the Review Team, it is difficult to properly assess cost of the project outputs.
- The cost of awareness raising events however seems to be on the high side (USD 20/participant, without national staffing costs).
- The unit cost of information dissemination events is far too high (USD 1,150/participant).
- The overall efficiency on awareness raising activities is considered low.
- The efficiency of CP auditors training has been relatively low a compared to the cost of training university academics.
- The overall project efficiency is far from satisfactory, with administration and management costs being too high by any standards.

3.3 Impact with Beneficiaries

- The total benefits to industry were difficult to quantify, as there is no system for monitoring post-assessment/audit implementation of the suggested CP measures.
- The Review Team however observed a lot of benefits during the field visit, resulting from CP interventions related to: energy saving, water consumption and waste management.
- The cost saving is clearly the driving force for CP actions in industry, mostly related to energy savings due to the high energy prices.
- Introduction of CP into the university academic curricula has been a major achievement of the NCPC.
- Most of the benefits result from low and medium cost measures. There are no suitable credit mechanisms currently available in the country to finance more expensive measures.

3.4 Project Administration and Management

- UNIDO withholds 13% of the project costs for financial management and administration of TA.
- The Administrative Agreement (Norway-UNIDO) has only partly been fulfilled, as the reporting is not relating achievements to plans.
- The Advisory Committee has unfortunately not been operating according to intentions. It *could* have given useful strategic advice to NCPC on the way forward, e.g. regarding centre sustainability.
- Management of the professional CP-related activities have been satisfactory, highly praised by the beneficiaries.
- Monitoring and follow up post-audit/assessment in industries have not been as expected. Input from international experts and the UNIDO Project

Manager have been largely appreciated by NCPC and the beneficiaries.

- There has been no strategic thinking with NCPC on how to move from "project" to "business", and combining sound CP services with sustainable business, and the centre operations have seemingly not been given the required attention.

3.5 Project Reporting

- Project reporting has partly resulted in doubling of efforts (as a special UNIDO format was required).
- Annual Reports are not consistently reporting on work plan outputs, and are not directly result-based.
- Some documents lack dates, authors, headers and footers, and some industry assessments lack practical operational recommendations for implementation.

3.6 NCPC Sustainability Issues

- It is assumed that the efforts started in industries during the Project, showing significant benefits, are mostly sustainable, e.g. the beneficiaries' internal CP teams are continuing their work post-project.
- There is already a market for some CP-related services such as energy efficiency, waste minimization, noise mitigation, environmental management, etc., but it must be developed further for *core* CP services. The market is least developed amongst SMEs in the provincial areas, where the potential/need is high.
- The enabling environment for CP (laws and regulations) largely exists today.
- NCPC has several competitors in the CP market, e.g. National Engineering and Research Development (NERD) Centre, Industrial Technology Institute (ITI) and Industrial Service Bureau (ISB).
- NCPC was institutionalised as late as in May 2013 (Company by Guarantee Ltd.), although this issue has been emphasised by the donor (and UNIDO) for many years. The Centre must now in principle to a large degree live from own income, not any more donor grants. The Review Team considers the (far too) late preparation of transforming a "project" into "business" a significant shortcoming of the Project.
- The Board of Directors (BoD) has a majority of public partners with the two owners being in minority. This is considered unfortunate, as the private sector owners then lose the control of their own undertaking.
- One market competitor to NCPC (NERD Centre) is sitting in the BoD, and was previously sitting in the Advisory Board. This is unfortunate, as it is assumed that this representative will be "reluctant" to give the best advice regarding market approach

and strategy, as such will be in conflict with his own employer's interest.

- Staff from the "project" period has been retained also into the "business" period, but a different kind of mindset will surely be required now.
- The budget for the first 3 months of 2014 made available to the Review Team clearly shows a financial deficit. There are however no concrete plans prepared to fill this gap, rather than applying for more project donor funds, meaning "business as usual".
- One advantage of being a company is that now the Centre can compete and apply for various consultancy assignments.
- The NCPC library is not available to outsiders, and the water laboratory has never been in operation.
- The instruments for energy auditing are in good working condition and are regularly used, but the CP-related instruments are not working or not being used as expected.
- Document management in NCPC is sub-standard: reports are stored on individual PCs, with no back-ups being taken; no MIS has been installed, so administrative documents can only be retrieved by one secretary upon request.
- The NCPC office facilities do not appear attractive to visitors from outside (narrow entrance, dark rooms, little space).

4. CONCLUSIONS AND RECOMMENDATIONS

- The NCPC services (partly free of charge or with subsidised rates) have unanimously been praised by the beneficiaries, who can show a lot of benefits resulting from CP initiatives. Overall effectiveness has therefore been rather satisfactory.
- Efficiency has not been satisfactory (too few people trained, too few event participants, too high administration costs).
- Institutionalisation of NCPC, with the Business Plan (now being prepared with GiZ assistance) came far too late.
- Document management in NCPC is unacceptable and too vulnerable.
- Recommendations related to sustainability of NCPC include: Gap funding must be sought if NCPC should survive 2014; appropriate marketing efforts must be instigated without delay, concentrating on the Colombo area and actively using success stories especially related to energy and cost savings; NCPC, with office facilities, must appear more attractive to visitors; centre staff must think "business" and not "project", concentrating on core areas; document management and MIS must be significantly improved; and equipment/instrument handling and use must improve.

TABLE OF CONTENTS

PREFACE

ACRONYMS AND ABBREVIATIONS

EXECUTIVE SUMMARY

1. INTRODUCTION	2
1.1 CP IN SRI LANKA AND PROJECT BACKGROUND	2
1.2 THE POLITICAL CONTEXT.....	2
1.3 THE REVIEW TEAM’S MANDATE AND APPROACH.....	3
1.4 PREVIOUS REVIEWS AND EVALUATIONS	4
2. PROJECT DESIGN	5
2.1 INTRODUCTION	5
2.2 PROJECT RELEVANCE	5
2.3 PROJECT OBJECTIVES	6
2.3.1 Long-term Objective.....	6
2.3.2 Short-term Objective	6
2.4 PROJECT OUTPUTS AND ACTIVITIES	6
2.5 PROJECT INDICATORS AND RISKS	7
2.5.1 Project Indicators.....	7
2.5.2 Project Risks.....	7
2.6 PROJECT ADMINISTRATION AND MANAGEMENT	8
3. PROJECT ACHIEVEMENTS AND PERFORMANCE	8
3.1 PROJECT ACHIEVEMENTS AND EFFECTIVENESS.....	8
3.1.1 Introduction.....	8
3.1.2 Awareness Creation on Cleaner Production	8
3.1.3 Training Programmes.....	10
3.1.4 Staff Training and Capacity Building	11
3.1.5 Consultancy and Advisory Services	11
3.1.6 Conducive Policy and Regulatory Framework are Strengthened and Enforced.....	13
3.2 PROJECT EFFICIENCY.....	13
3.3 IMPACT WITH BENEFICIARIES	15
3.4 PROJECT ADMINISTRATION AND MANAGEMENT	17
3.5 PROJECT REPORTING	18
3.6 NCPC SUSTAINABILITY ISSUES.....	19
3.6.1 Sustainability with the Beneficiaries	19
3.6.2 Sustainability of the NCPC	20
3.7 OTHER RELEVANT ISSUES	25
3.7.1 Material and Equipment with NCPC	25
3.7.2 Document Management.....	26
3.7.3 The NCPC Office Facilities.....	26
3.7.4 Gender Issues	27
4. CONCLUSIONS AND RECOMMENDATIONS	27
4.1 CONCLUSIONS.....	27
4.2 SOME RECOMMENDATIONS	27

APPENDICES:

- Appendix 1: Maps, figures and tables
- Appendix 2: Explanatory boxes
- Appendix 3: Elaboration on the project design
- Appendix 4: List of beneficiaries
- Appendix 5: Briefs from visits to beneficiaries
- Appendix 6: Achievements and indicators
- Appendix 7: NCPC programmes during Phase II
- Appendix 8: List of CP competitors
- Appendix 9: List of persons met and contacted. The Team’s itinerary.
- Appendix 10: List of reference documents
- Appendix 11: The Team’s Terms of Reference
- Appendix 12: Illustration Photos

1. INTRODUCTION

1.1 CP in Sri Lanka and Project Background

The concept of Cleaner Production (CP) was introduced to Sri Lanka (*Figure 1.1 in Appendix 1*) way back in 1993 through a UNDP/UNIDO programme with the Central Environment Authority (CEA) of Sri Lanka. Additionally, there were a few other Cleaner Production initiatives in the country during this period, e.g. the Cleaner Production Demonstration Project (1999-2001, by Employers Federation of Sri Lanka covering five industries). In late 90s, Ceylon Chambers of Commerce in association with National Development Bank launched a web page on CP (“Cleanet”), funded by the World Bank during its initial phase, but this stopped due to lack of financing. In 1998, United States Asia Environmental Partnership (USAEP) and UNIDO in association with Small & Medium Enterprise Developers (SMED) trained a group of 22 CP national consultants/auditors, and with their assistance a pilot project was conducted in five industrial enterprises to demonstrate the benefits of CP.

UNIDO decided to incorporate the establishment of a National Cleaner Production Centre (NCPC) as a component of the Integrated Industrial Development Support Program. The Norwegian Government agreed to provide the initial funding to start up the Centre and run it for five years, and an agreement between Norway and Sri Lanka was signed in February 2001. The Centre Director and two staff were recruited in March 2002 and on 6th May 2002 the Minister of Industrial Development officially launched the Centre. Cleaner Production was made a priority principle in the National Environmental Action Plan (NEAP), and CP was given priority in the National Solid Waste Management Strategy. In 2005 the Ministry of Environment and Natural Resources formulated and endorsed a National Cleaner Production Policy, Strategy and Action Plan.

Phase I of the NCPC lasted out 2009 (after extension of 1.5 years), starting under the Ministry of Industries and later shifting to UNIDO to make fund transfer easier (still with the Ministry having the overall responsibility). Phase II effectively started in 2010 based on an Administrative Agreement between the Embassy and UNIDO, initially meant to last 3 years. However, due to the continuous delays in institutionalising NCPC into a self-sustained entity and with remaining funds, two no-cost extensions have been given totalling one year, out 2013. Some important milestones in the life of the Centre are shown in *Figure 1.2 in Appendix 1*. Until May 2013, when NCPC was registered as a company, NCPC functioned as a “project”. The total funds committed to the Project are NOK 9,350,000 over the last 4 years (Phase II).

1.2 The Political Context

Despite ongoing ethnic conflict in the north and east, Sri Lanka had been able to maintain its economic growth around 4-5% up to 2009 except in one or two bad years in early 2000 due to the aggravation the conflict. Thus Sri Lanka had been able to graduate into a middle-income country during this period. Even within this period with the peace process started after year 2000, there had been major initiatives for reconstruction and rehabilitation programmes in the north and east with donor funding creating hopes for peace to some extent, with favourable socio-economic condition in the country as a whole for investment and economic growth. After 2004, when the new Government came into power, the political stability of the country was strengthened to a larger extent and the political opinion towards the conflict took a different direction, gaining more support. Since then the war situation in the north and east against LTTE was intensified, with support of the public.

However, this situation has not much affected the economy of rest of the country, in spite of regional economy of the north and east being somewhat paralysed. The Government managed to end the war by the mid-2009 and created a peaceful environment in the whole country, also gradually opening the war affected areas with a massive reconstruction and rehabilitation programme, particularly focused on resettlement and infrastructure development. This political change thus created a favourable socio-economic environment for the second phase of the NCPC project in Sri Lanka, through i.e. achieving a 7-8% economic growth rate after 2009.

The present Government is promoting an export-led economic growth with a view to making Sri Lanka an economic hub of South Asia. The industrial development particularly focused on tourism, and has been promoted with a large number of fiscal and monetary incentives to attract foreign and local investment while giving priority to greening the environment. With the progress of industrial and service sector in the country after 1977 (industrial and service sector presently contribute 30% and 58% respectively to GNP) particularly focused on export and the environment protection; and CP policy and regulatory framework established had created a very favourable context for the implementation of NCPC second phase. The Review Team therefore concludes that the pre-2009 instability and civil war situation in the north and east has clearly not affected the project performance in Phase II, having activities in the west, around Colombo, and in the South. Neither can the Team see that the pre-2009 situation in any way should have influenced on the lacking institutionalisation of NCPC, as this seems to have been steered by another political agenda¹. However, as discussed later in the report there were other constraints to development, such as financing for CP measures in the enterprises.

1.3 The Review Team's Mandate and Approach

The main purpose of the End Review (“the Review”) was to assess the impacts of the outputs and outcome of the project activities and the sustainability of the NCPC. *Appendix 11* contains the Terms of Reference (ToR) for the Review Team (also referred to as “the Team”). The End Review (“the Review”), being mandatory as per the Administrative Agreement with UNIDO, was undertaken when the Project still had a couple of months until being completed. This means that the report in hand does not constitute a *real* end review as such.

Following document review (list of main documents in *Appendix 10*), the fieldwork in Sri Lanka was undertaken during the period 28 October-7 November 2013 by a team of one international and two national consultants². In addition to meeting with NCPC staff, including the new Chairman of the Board, the Team had several meetings with various stakeholders and visited 14 beneficiaries of the CP activities both in Colombo and outside. *Appendix 4* contains the complete list of beneficiaries in Phase II (total 40) and *Appendix 5* lists briefs from the visited beneficiaries. A couple of appointments were cancelled due to no-show or unforeseen incidents.

It should be noted that as all required documentation was *not* made readily available to the Team by NCPC at the start-up of the Review, the efficiency of the teamwork was not as good as wanted. For example, the list of auditors and consultants trained was not produced, and key information of the industries was not presented prior to the field visits, so the framework related to selection of which beneficiaries to visit did really not exist beforehand. Also the roundtrip outside Colombo was partly prepared by NCPC with no regards to travel distances, so significant delays were experienced. Finally, the reporting of project achievements was not consistent (different figures for same events in same reports, etc.), which influenced on the accuracy of the Team's assessment. Notwithstanding these shortcomings, they have not *significantly* influenced on the main conclusions of the Review Team.

(It is noted that in the comments by UNIDO to the Draft Report it is stated that: “*Exact budget figures and savings are not revealed during the visit of the Review Team because the Centre's management perceived one of its national members as competitor*”. This was not taken up with the RT during the Review, which is not understood, if it really was a reason for not giving the RT insight into all budget figures. The RT seems thus to have been given limited budgetary information, even without knowing it. The team member referred to is a consultant working through LMW Energy Solutions, in this assignment hired through the *Sri Lanka Energy Managers Association*. He was trained in Cleaner Production Auditing under UNIDO in 1997 and is a certified Energy Auditor, and has been working on smaller assignments with numerous clients as consultant (including UNDP, UNEP, UNIDO, World Bank, EU Switch Asia etc.). From 2003-2009 he worked in the National Engineering Research and Development (NERD) Centre. NCPC has worked, and still

¹ The Team therefore disagrees with the comments from UNIDO to the Draft Report, implying that “*the economic and political situation in the country that has been affected for years by civil war...*” should have had any specific effect on the Project during Phase II.

is working, with several outside consultants that have been trained as CP auditors/energy consultants, and all of those should then in principle be “competitors”. It is also known that several of the professionals trained by UNIDO as CP auditors have started their own carrier afterwards, both competing and cooperating with NCPC, also getting insight into certain operational aspects of the Centre. The comment of NCPC in this regards is therefore found totally inappropriate, as they all through the last phase have had the Director of NERD, a direct competitor institution, in the Advisory Board and after the institutionalisation the person is sitting in the Board of NCPC).

The itinerary of the Team is enclosed in *Appendix 9*, together with list of persons met and consulted. *Appendix 2* contains some explanatory boxes (that normally would have been placed in the text, but is taken out due to space limitations) and *Appendix 12* presents some illustration photos taken by the Team.

1.4 Previous Reviews and Evaluations

The following reviews/evaluations have been carried out in the Project since the start-up in 2002:

- A mid-term review was carried out in 2006 (the report is dated 4 December) by the local consulting company PASS Research and Consultancy (Pvt) Ltd. (who also did the later Baseline Survey and Feasibility Study in Phase II in October 2010). The report lists a lot of recommendations, amongst which the following were noted:
 - More focus should be put on strategic planning and marketing of services, including training of staff in such
 - A data comprehensive, yet easily accessible data base should be established
 - More focus on CP service delivery documentation
 - A strong workable Business Plan for NCPC must be completed for the second phase
 - Motivation of the NCPC staff must be maintained
 - An easily accessible library must be set up
 - A laboratory must be established with available equipment
 - The website should be developed to be more industrialist and business friendly
 - The institutionalisation of NCPC should be based on a proper study and suitable model
 - Second phase should not be implemented similar to the first phase
 - A rapid industry analysis should be undertaken to map the feasibility and potential for CP
 - NCPC should focus more on the CP technology investment project
 - A systematic marketing program should be put in place.
- A Country Review was undertaken by a UNIDO consultant in 2007 (Report dated 17 July), amongst other commenting:
 - The Centre’s legal status and ownership remain unsolved
 - More effective use of success stories would appear desirable (evidence based CP promotion)
 - Participants in training was unanimously positive on the contents and presentations
 - Relevance for businesses still appears relatively low
 - Overall effectiveness is good
 - Efficiency has been relatively low, as framework conditions are not in place
 - NCPC must define its own strategic niche
- A desk appraisal of the initial Project Document (PD) was undertaken June 2009 by the Pollution Control Authority in Norway (SFT- “Statens forurensningstilsyn”), amongst other pointing out that:
 - A feasibility study and baseline study should be carried out
 - Development objectives of the project should be revisited, and the PD should ensure consistent use of terminology
 - An outcome addressing institutional sustainability should be included in the LFA
 - A result oriented monitoring and evaluation plan should be prepared
 - A more explicit exit strategy should be outlined
 - The budget should be reworked
 - SMART (time-bound) indicators for outputs and activities have to be formulated
 - The PD needs to be more outcome-driven (not so much “go with the flow” approach)
 - Thematic focus should be addressed
 - Need to focus on building own capacities and capacity building on own staff
 - The success of the project will largely depend on the availability of financial schemes for investments

It is noted that several of the issues taken up in the above reviews, are still unsolved by the time of ending the Project. This is dealt with in various section of the report.

2. PROJECT DESIGN

2.1 Introduction

The Review Team notices that there has been a significant change in the project logframe throughout the planning and implementation period, as in some key documents the logframe presentation and contents are different, with different terminology used throughout, illustrated in *Figure 2.1* in *Appendix 1*. *Appendix 3* gives a rather detailed review of the various elements of the logframes, whereas below only the main points are highlighted. It is noted that the internal Appropriation Document (signed 6.11.2010) from the Norwegian Embassy contains the same logframe as the Administrative Agreement (signed 10.11.2009), but these are very different from the logframe in the Project Document (PD, of September 2009). In October 2010 a Baseline Survey, containing a revised logframe based on SMART indicators was prepared³ (as requested in the Appraisal Report of June 2009, prepared by the Norwegian Pollution Control Authority (SFT)). The preparation of the Baseline Survey was specifically mentioned as a requirement in the Agreement. As the logframes are so different, the Review Team has assumed that the last logframe developed (in the Baseline Survey) was the “valid” one. However, none of the documents reviewed by the Team gave any leads as to which one was “steering” logframe, and neither of the logframes are used as reference in the reporting anyway⁴.

It should however be reminded that the project logframe defined in the PD, on which basis the funding (Agreement) was agreed to, should in principle not be *significantly* changed during the Project, and especially not the objectives, unless extraordinary reasons make this required. For easy reference, the “normal” result chain widely accepted is shown in *Figure 2.2*, *Appendix 1* explaining the connection between the various logframe elements (assumed self-explanatory)⁵. The logframe in the final Project Document (PD) is presented in *Figure 2.3* in *Appendix 1*. *Figure 2.4* shows the logframe as presented in the Administrative Agreement and *Figure 2.5* shows the logframe formulated in the Baseline Survey.

It should also be reminded that the logframe is not “*an end*” in itself, but merely “*a means to an end*”, and that satisfactory project performance is indeed possible despite deficient logframes⁶. It is observed that the ambiguity in logframe has clearly *not* created any “confusion” with the project management staff, only with the Review Team. Notwithstanding this, it is appreciated that the overall design of the Project follows the elements in the model of the wider UNIDO Resource Efficiency and Cleaner Production Programme (RECP).

2.2 Project Relevance

As far back as in the late 90s the Government established the necessary institutions such as the *Central Environmental Authority (CEA)* and the *Ministry of Environment*, with required policies and regulatory frame work – the *Environmental Protection Licensing (EPL) Scheme*, mainly to address end-of-pipe solutions (treatment). When Sri Lanka was upgraded to a “middle income country” in 2000, the country clearly needed to be competitive in the world market by increasing its productivity while complying with

³ By the Sri Lankan consulting company PASS Research and Consultancy (Pvt) Ltd.

⁴ In the comments to the Draft Report however, UNIDO writes: “*The log frame outlined in the baseline study, which was developed by a national expert team, uses different formulations as the PD, with similar content. Project management, thus, did not feel the need for amending the existing log frame of the PD and it continued to be the basis for project implementation and monitoring*”.

⁵ Notably, OECD, EU and various bilateral donors have slightly different definitions on the logframe elements. This does not pose any problem when the prevalent definitions and guidelines are clearly spelled out from the start in any project. The elements that can be guaranteed (controlled) by the management, and the ones that are clearly outside such control, should be similar in all logframes (although slightly different terms are used). The management *can guarantee* the Expected Results/Outputs, but can clearly not be held *formally* responsible for fulfilment of the Specific Objective/Purpose! (It is also noted that the boxes shaded in blue in the figure are the “results”, meaning one result being the effect of the previous).

⁶ As also rightly pointed out by UNIDO in their comments to the Draft Report.

international environmental and social responsibility standards. Both the Government and private sector welcomed the concept of CP in 2002, as a highly relevant approach for achieving increased export-led economic growth in the future. CP was made a priority principle in the *National Environmental Action Plan (NEAP)*, and CP was given priority in the *National Solid Waste Management Strategy*. In 2005 the Ministry of Environment and Natural Resources formulated and endorsed a *National Cleaner Production Policy, Strategy and Action Plan*.

On the other hand, awareness and civil society pressure for enhanced cleaner production standards are increasing in Sri Lanka. A couple of recent incidents associated with water pollution⁷ (mid-2013) created a big political discourse and draw Government's highest level of attention on pollution control and cleaner production. This have generated more enthusiasm and boosted focus on cleaner production and pollution prevention also amongst a wider group of policy makers and industrialists. The NCPC Centre has influenced policy makers to introduce CP policies and some amendments to the Environment Act of the country favourable to promote CP technologies. Following from the above, it goes without saying that the Project, and centre activities, is very relevant.

2.3 Project Objectives

2.3.1 Long-term Objective

In the Baseline Survey the *Project Objective/Goal* is defined as: “NCPC is strengthened sustainably to facilitate the formulation of conducive policies and enabling regulatory frameworks to create awareness on RECP, inculcate its practice and application of solutions for enterprises, civil society and other stakeholders”. This is directed toward the Centre and its role in policy framework formulation and not the environment as such. The Review Team concludes that the goal is not at all well formulated, as it is “overloaded” with several elements that inter-depend on each other and contains elements that normally belong both to the short-term objective level (outcome) and even output level. The Annual Reports of 2010 and 2011 do not refer to the project logframe. The Annual Report 2012 does repeat the long-term objective from the Agreement, but now calls it “Vision”.

2.3.2 Short-term Objective

No purpose has been formulated neither in the PD nor in the the Baseline Survey. In the latter, four “intermediate objectives” have been formulated, which in reality should represent the outcome/purpose level:

- **“Intermediate Objective 01:** *To institutionalize NCPC in to a self financing appropriate legal entity with a strong vision and to obtain recognition by government, enterprises, civil society and other stakeholders through awareness, promotion and networking.*
- **Intermediate Objective 02:** *To implement RECP and related solutions by the enterprises throughout the country with sound awareness and education.*
- **Intermediate Objective 03:** *To facilitate the RECP capacity building of the stakeholders including the financial institutions, higher vocational and general educational institutes for the implementation of RECP Solutions.*
- **Intermediate Objective 04:** *To strengthen and enforce relevant national regulatory framework and RECP conducive policies.”*

However, these intermediate objectives are not formulated as outcomes (happening post-project), but as activities to be undertaken *within* the Project (under the control of the management). The Review Team finds the formulation and hierarchy of objectives in the Project at various levels misleading, with inconsistent use of terminology and formulations⁸.

2.4 Project Outputs and Activities

The three main documents (PD, Agreement and Baseline Survey) also have sets of different outputs, but the Team will refrain from analysing these in detail. Reference is made to *Appendix 6*, where the outputs and intermediate objectives with indicators from the Baseline Survey are listed. However, the activities leading

⁷ In middle of the year, associated with a factory producing gloves in Rathupaswela, Gampaha District.

⁸ This was also clearly pointed out by the appraisal team (but obviously not rectified).

up to the various outputs are not specified⁹. Such list could have been useful to the project/centre management in monitoring the daily work, but it has obviously not hampered the implementation in any way. The key activities in the Project are described fairly detailed in the initial PD, and this has been used as reference by the management.

Despite the confusing sets of logframes, the RT concludes that the planned activities and outputs at large have been sufficient to achieve the formulated outcomes (with reference to the Baseline Survey). It is however noted that the output on the *Corporate Plan* referred to under Immediate Objective 1 (“... *NCPC in to a self financing appropriate legal entity...*”) did obviously not put enough emphasis on the market analysis, competitive situation and business development of the Centre. The need for taking such expertise on board has been realised towards the very end of the Project, when finally the Board, with a Chair from the private sector, was established. The emphasis on the competitive market should have been explicitly formulated as an early activity in the planning.

It is also noted that the activity of identifying and formulating financial mechanism for RECP solutions indeed was, and still is, an important task, with e.g. training of financial institutions, and Government, to meet such needs in industry. Due to the prevalent situation this activity might seem as a somewhat “unrealistic” one in hindsight, although this has been totally outside the control of the Project. On the other hand, the required (and successful) mainstreaming of RECP in higher education curriculum, was an appreciated and needed activity to take on board in the capacity building towards implementation of RECP solutions. It seems like the NCPC is the only institution working in the CP field taking such view of national capacity building seriously on board own project, benefitting the whole society in the long-term.

2.5 Project Indicators and Risks

2.5.1 Project Indicators

The Project Document includes, as part of the logframe, a list of indicators at “project objective”, outcome and output levels. The indicators are however not quantified and there is no baseline given, and most of them are very generic. Additionally, the PD contains a table with so-called “*success indicators*” divided in “*activity areas*”, again divided in two sets of indicators: “*Generic UNIDO-UNEP CP Programme Success indicators*”, and “*Country specific planning and reporting indicators*”, as illustrated in *Figure 2.6 in Appendix 1*. It is difficult to see any direct correlation between the two sets of indicators, and it seems that many are duplicating and overlapping. The Review Team does not understand why there are two tables of indicators in the PD, and no one interviewed by the Team seems to be able to explain this, rather than “*the Norwegian Embassy had requested to include the success indicators*”.

The Baseline Survey contains indicators at goal, immediate objective and output levels, being listed in *Appendix 6*. Some of indicators are relevant, some are not well formulated and some are reflecting the wrong result level (mix-up of *output* and *outcome* levels). It is understood that these indicators have *not* been used systematically in the monitoring of the Project, and are not directly reported on, although UNIDO in their comments to the Draft Report confirms that “*a set of performance indicators was applied and reviewed on an annual basis*”, and being in line with the target values in the PD budget.

2.5.2 Project Risks

The PD contains assessment of some risks and suggested mitigation measures. The listed risks are considered relevant. The lack of financing mechanisms for implementing CP measures in industry at present shows that this risk, indeed being crucial to CP implementation, and the Centre’s sustainability at large, was largely underestimated. The sustainability of NCPC post-project should have been much more elaborate as a risk, especially with regards to financial sustainability, being part of the donor “*exit strategy*”¹⁰.

⁹ However, the intermediate objectives are formulated as activities.

¹⁰ This was also asked for in the Appraisal Report, also asking for assessment of risks related to corruption and misuse of funds, which has not been done. It is observed that the Appropriation Document (internal document in the Embassy) has a relevant analysis of the risks, and addresses both financial sustainability (“..... *the goal is to reach 90% by three years*”) and anti-corruption. Additionally, the risk of the Centre being “*politicized*” is also mentioned, which indeed is a prevalent issue.

The Feasibility Study (October 2010) has a more elaborate list of risk factors, although the risk potentials have not been *rated*. From the list, the issue of non-availability of the trained auditors is mentioned, indeed felt in the Project. Also, the lack of Government support for converting NCPC into another structure (institutionalisation) was mentioned, which indeed has materialised. The RT reminds that risk assessment is a *continuous* exercise as the external frame conditions are constantly changing. It is however hardly mentioned in the 2010 and 2011 Annual Reports but in the 2012 AR a risk assessment is undertaken, elaborating on the assumptions made at outcome and output level. This a commendable attempt, although more could have been said on the willingness to pay for centre services by the industry, as this is crucial for sustainability; and the continuous delay in institutionalising NCPC should have been addressed.

2.6 Project Administration and Management

Figure 2.7 in *Appendix 1* illustrates the organisational set-up of the Project, and it is largely considered to be self-explanatory. It shows the main partners and stakeholders/programmes in the Project and how they are inter-related. The figure largely shows the situation during project implementation, but also indicates the institutional changes that took place in May when NCPC was turned into a company (dotted lines). At that time the Advisory Committee ceased to exist and a Board of Directors was put in place. It is noted that the UNIDO Focal Point (an honorary position appointed by the Min. of Industry and Commerce) has only been involved in the payment system and have not involved at all in the substance of centre activities.

3. PROJECT ACHIEVEMENTS AND PERFORMANCE

3.1 Project Achievements and Effectiveness

3.1.1 Introduction

As described above, the logframe of the Project, presented in several documents, is ambiguous and inconsistent. The Baseline Survey contains a list of indicators, listed in *Appendix 6*; under the goal, intermediate objectives and outputs; and the level of achievements are indicated. The table also gives the Team's assessment of the formulation of the indicators. Indicators for the goal will materialise in the far future, and it is not relevant to assess these in the Review. (One indicator belongs to the output level and not the goal level). As seen, some indicators have been achieved, some partly and some not, mainly as it is too early to assess them. Most indicators do not have a target value or an indication of time for achieving the targets. However, the targets for some *activities* were available in the budget and annual work plans, but not for *outputs* and *outcome*¹¹. As this list has not been used for monitoring the Project, the RT will refrain from commenting more on it. *Appendix 7* lists the complete programme of events for the years 2010-2013 (up to the time of the Review). Below, the achievements of the Project are briefly presented, with the Team's assessment. It is for easy reference largely following the sequencing in the ToR, and not in the ambiguous logframes. (The target values, referred to below, are mostly the ones given in the annual budgets).

3.1.2 Awareness Creation on Cleaner Production

Being a key activity area under the Project, different approaches such as: lectures; seminars; information dissemination through leaflets, posters, books, manuals, and website; exhibitions; and annual CP Award ceremonies have been used. The awareness has been targeting different groups, e.g. policy makers, industries, enterprises, public and private sector officials, universities, technical colleges, schools and civil society organizations, etc.

Table 3.1, Appendix 1 shows the various awareness raising events throughout the Project. As seen, NCPC has conducted 45 seminars/lectures and 19 awareness meetings over the period of 2010 to 2013, with 2,401 and 724 participants respectively. The target in the budget was 54 seminars, so the achievement has been 83%. However, it is very difficult to see to what extent different target groups have been reached as no targets values have been given. The number of awareness seminar/lecture days is 1,888, with 381 for

¹¹ For example the number of awareness programmes expected to be conducted is given, but the output indicator or outcome indicator to explain which % of particular groups is expected to be reached as a result, within such and such a period and what percentage of that group is expected to come back for services to NCPC in turn as an outcome, are not given

awareness meetings. Seminars cover a mixed target group, and out of 2,401 participants, 500 are school children (but no target value for school children was available). After 2011, no school programmes were conducted due to lack of co-operation from the Ministry of Education, as per info from the centre management. It has not been possible to overcome this problem so far, and hence it might indicate that NCPC has lost the focus on an important target group for the long-term sustainability. A few written success stories have however been used for awareness raising, but using successful industrialist to tell their stories to their peer group, and taking study tours to those places, seemingly has not taken place.

The Project does not seem to have a clear strategy with regard to awareness creation. It focuses on 4 identified sectors: plantation based industries, agro based industries, tourism, and textile. The Team noted that the majority of the participants of awareness raising events were *not* from those sectors, but from public sector. There has been no system to assess the *effectiveness* of the awareness programme due to lack of follow up data, in order to get an idea on how many came back to the Centre with request for services. No indicators with target values and time frame are given to monitor the effectiveness. In order to make the awareness programme more effective, a targeted focused approach would have been needed.

There has been a long delay in producing promotion materials such as manuals (4), posters (16, see photos in *Appendix 12*) and books (4, produced in 2010 but not yet printed in 2013, *Table 3.2, Appendix 1* refers). Materials for information dissemination was also produced¹², and newsletters (2 in 2011 and 1 in 2012)¹³. The produced posters or leaflets have not been displayed/placed at the Centre, e.g. to be seen and picked up by visiting clients, and no information material is presented on the website (the newsletters being an exception)¹⁴. On the other hand, the Team has neither found any of these materials at the enterprises visited, so the dissemination of information seems not to have been *that* effective¹⁵.

NCPC must have been distributing the information materials as soon as they were produced, as they were not available anymore at the Centre. However, though budgetary provision has been made, the materials have not been produced again, and it has been a once and for all exercise as far as the Team can see. Information material produced has not been uploaded to the NCPC website¹⁶. The number of requests received by the Centre for information and services would be one *indirect* indicator for the effectiveness of the Project. However, no targets have been provided for this either. As per progress reports of Phase 1, AR 2010 and AR 2011 there were 285, 45 and 30 such requests respectively, meaning a declining trend. The library was also expected to play an information dissemination function, however it has not been effective at all (see below) and no target values have been provided.

The annual CP Award has been an important awareness creation and motivation event conducted by the NCPC. This event was *not* held in 2010 (although the *competition* itself was held according to NCPC) and thereafter it has been held regularly, with some time delays. The participation in the actual competition seems however to be rather low, and there was no significant increase in participation over the years. Participation of enterprises in the competition had been 24, 28, 27 and 30 since 2009 to 2012 respectively. No targets have been set for the participation of enterprises in this event. Again, effectiveness seems to be rather low.

On the other hand, the award ceremony attracted more people (in total around 1,200 for the 3 ceremonies in Phase II), surely being effective in promoting CP for a wider audience. Of other awareness raising events should be mentioned the 2nd Sri Lanka Roundtable on Sustainable Consumption and Production held in February 2013 (with 175 participants according to the NCPC website). Also the 9th Asia-Pacific Roundtable

¹² 4 posters produced; 2 on electricity savings, 2 on water and waste minimization, 3 leaflets; 2 on NCPC, 1 on chemical leasing, 2 booklets; 1 on CP and 1 on Chemical leasing, both only in English and one success story.

¹³ Although NCPC claimed that one was being printed at the time of the Review, and one should be produced in December 2013.

¹⁴ The NCPC management claimed that they wanted to “*launch the material officially*” first, before making it available on the website. The Review Team does not understand this approach. If the material had been uploaded, the dissemination would have been more effective. There is no way of checking the effectiveness of website as no information is available as to how many have visited it.

¹⁵ However the Team saw the posters and leaflets from other similar projects at some of the places visited.

on SCP (APRSCP9), hosted over three days by NCPC in June 2010 was an important event¹⁷, with 3 plenary sessions, 5 mini roundtables, an open forum, 11 parallel sessions and 3 training workshops (with altogether in the magnitude of 200 participants from 30 countries, according to the APRCP website). Obviously, this successful event gave NCPC a lot of well-deserved positive publicity, and surely was important in raising awareness of CP.

3.1.3 Training Programmes.

As large variety of training events has been conducted by the Project (see *Table 3.3, Appendix 1*). In Phase I, close to 100 CP auditors were trained¹⁸. At the same time the project reports from Phase II highlighted the shortage of trainers, as only 22 from Phase I were available for service provision. Thus the need for training of 300 CP auditors over a 3-year period was identified as a target in Phase II Project Document. However, the number trained has been 68 up to 2012, and 14 auditors trained during 2013 have not yet fulfilled their field study requirements by the time of the Review. No targets have been set for this activity in the work plans or budget on the basis of initial target given in the PD. However, for the purpose of this Review, the Team took the PD's target value. Similarly targets for some activities had to be found from different sources.

The trained auditors represent different organizations, with more than half coming from public sector and less than 15% come from industry and private sector service providers. Out of the 68 trained, the number available for services seem to be much less (nobody knows the number, as the trainees have not been followed up post-training). No indicators have been formulated to measure the number of trainees practicing CP auditing after training. This issue was also raised by the mid-term review in Phase I¹⁹, but no follow up has been done. Availability of CP assessors is another concern for service delivery so as to reach geographical periphery areas effectively. The information available shows that attention paid to periphery is not adequate. *Table 3.4, Appendix 1* shows the distribution of CP consultants trained, showing that around 40% came from the industry and private sector (leave alone the ones from NCPC). The reasons for low performance were discussed with NCPC and one of the constraints pointed out was the difficulty in finding industries to the field part of the course (as "practicing objects").

Special subjects training (*Table 3.3*) are associated with the other kind of services provided by the NCPC such as Chemical Leasing (CL), Life Cycle Management, Responsible Care, ISO 14000 and 50001, Chartered Institute of Environmental Health (CIEH) Level 2 Award and services to special projects, etc. (26 events with 903 participants). However no targets have been given in work plans for this kind of services and they seem to be provided on request. With this kind of training the NCPC managed to introduce novel environmental concepts into industries and also created new income possibilities with diversified service portfolio. This however seems somehow to have negatively affected NCPC core services. *Some* of the services provided, particularly for government projects, were free of charge (e.g. Haritha Lanka), while others seemed to have not been properly priced based on actual costs involved. The present portfolio of the NCPC seems to be very much influenced by the external demand, rather than focussing its primary target group, the enterprises. In addition, the Centre has conducted short audits, CP and energy assessments under such projects as SWITCH Asia, Geo Responsibility Award and Prosper Sri Lanka.

Training provided to university academics: NCPC conducted 5 trainings with 89 participants during Phase II. This training seems to be have been very effective as 12 departments in 7 universities have started to conduct CP modules as part of their First Degree and Master Course programme. Recently, NCPC has also conducted such programmes in Jaffna University. No indicators are available to measure the effectiveness. The total effect of university academic training programmes cannot be attributed to the present phase alone, as some of the courses had been started as far back as 2005. The Team visited the Universities of Moratuwa and Colombo, and the staff members were very happy with the input NCPC has provided. Both reported that the

¹⁷ Hon. D M Jayaratne, Prime Minister of Sri Lanka participated as the Chief Guest while Dr. Kendah Yumkella, DG, UNIDO was the Guest of Honour and the key note speaker.

¹⁸ Different documents give different numbers varying from 75 to 190 as the number of auditors trained during this phase.

¹⁹ The quality of the services provided was also a concern expressed by the mid-term review. Some clients complained about the delay in submitting the report after assessment. Another concern was that the inconsistency of reporting after audit and many assessors seem to have lacked the reporting capability though the knowledge on subject matter is there. The same deficiencies seem to have continued even in Phase II, as per things seen in the field.

modules are very popular among the students and 70% of Moratuwa graduates selected this module as an option²⁰. Though such training has been provided to technical colleges, the effect seems to be low. On the other hand, the RT noted that still 70% of the Moratuwa and 100% of the Colombo modules is conducted by NCPC staff. Though it has made a positive impact in the universities, in the long run it may not be a satisfactory situation to continue the dependency on NCPC for undergraduate courses, as the Centre should have other (income-generating) priorities.

Though it was expected to conduct programmes for, and develop capacity in, financial institutions to make them aware of the CP investment potential for funding, only two programmes seem to have been conducted during Phase II, limited to awareness raising only. As nothing seems to have come out of this intervention, NCPC has not been effective in influencing the financial institutions (incl. Min. of Finance) to provide any financial and fiscal incentives for CP investments.

3.1.4 Staff Training and Capacity Building

Presently, NCPC has a total staff of 19 and of which 13 are professionals²¹. The Director continued from the beginning and had been trained already in 1993 and 1998 (UNIDO, UNDP, CEA). Out of 13, only 5 are more than “5 years old” and the rest are new (see *Table 3.5, Appendix 1*)²². In 2011, 3 engineers left while 2 seconded officers from the Ministry had also been withdrawn from the Centre. Thereafter, 7 new graduates were recruited by the Centre, of which 3 have been left and 3 continued. In 2012 another set of new graduates were recruited, all (except one) having Environmental Management courses. The administrative arrangement of the Project has provided short-term contracts to the employees and also uncertainty faced with ending of the Project and future sustainability of the Centre prevented keeping young professionals after getting field experience, and also prevented attracting senior experience hands.

The Project Document for Phase II contained a brief Staff Capacity Development Plan listing the employees of NCPC and the proposed training for each during the 3 years. According to UNIDO, special staff training has included the following CP focus areas: Life cycle assessment and eco design, ISO 14001, ISO 50001, ISO 22001, Chemical Leasing, sound chemicals management, energy efficiency, carbon foot print, and water footprint²³. The young graduates who have joined NCPC during Phase II have got opportunities to participate in all the external training conducted by the Centre and to work with international and senior national consultants who provided services to the Centre, but all on an ad hoc basis. Additionally, most of them were encouraged to follow weekend master courses, and one of them followed a PhD course. In that way the staff managed to improve their capacity with very little cost to the Centre, which is commendable.

3.1.5 Consultancy and Advisory Services

In addition to training in CP, consultancy and advisory services are the “bread and butter” of the NCPC and the Centre needs to create further demand for such services. According to NCPC they have largely failed to undertake effective promotional activities to create a demand for services due to lack of funds for such activities, as they claim UNIDO has not given priority to those activities. The Centre is expected to do quick scans and comprehensive assessments of industries and enterprises, and provide recommendations for implementation with cost benefits. Services also include facilitating financing for such projects helping the clients with formulation of project proposals and also participating in the negotiations with financial institutions. On the other hand, the Centre could provide advices and services to obtain certification for environmental management system to be established. In addition, the Centre, with the present built-up capacities, could to some degree undertake consulting contracts related to implementation of CP and pollution control related projects, e.g. to earn an income.

As in other cases, few target values have been provided in the work plans for these activities in Phase II.

²⁰ So far 8 batches have been passed out from Moratuwa. The Team met a graduate passed out from Moratuwa practicing CP in an industry making concrete.

²¹ Plus 4 administrative staff and 2 drivers.

²² An AD started from the beginning left two years ago and it has been blow to the capacity of NCPC. Six months later another senior person joined the NCPC as a Regional director due to closing down of a project funded by ADB retired.

²³ NCPC's Training Record was never made available to the Team during the Review. Notably, the Team discussed this capacity development with the NCPC management, and they clearly stated that no development plan was followed and that staff members were allowed to participate in training conducted by the Centre on an ad hoc basis.

Phase 1 had conducted 100 quick scans and 140 comprehensive assessments according to one source (*Table 3.6, Appendix 1* refers).²⁴ The Project has not established a system to monitor the assessed industries to see to what extent the recommendations have been implemented or not. According to the 2011 Annual Report a “trace study” of 4 industries had been conducted to assess the effectiveness. However, the report from the “trace study” was not made available for the Team. Though indicators have been provided in the baseline document, no values have been given for those indicators in any of the documents to measure performance. Lack of such monitoring has prevented the assessment of effectiveness and impact of the services. However, the Review Team managed to visit a few enterprises most of which have been assessed under Phase 1 and these have reaped substantial benefits and appreciated services to great extent (see separate section).

With the investments made to improve enabling environment in Phase 1 for CP service, greater demand than realized for such services in the Phase II would be expected, if the investments made had been effective. As per Phase II budget, 90 environmental audits (water, energy, chemicals, etc.), 24 comprehensive audits, 108 quick scan were planned. But, despite the services being offered partly free of charge, only 42 environmental audits and 23 quick scans were undertaken. On the other hand, 33 comprehensive audits have been conducted during Phase II (*Table 3.6, Appendix 1* refers), including the 30 comprehensive audits conducted by the trainees of the CP auditor’s training programmes as a partial fulfilment of their training requirement (*Table 3.7, Appendix 1*), so NCPC has exceeded its target in this regard²⁵. 5 more short audits have been conducted for the SWITCH Asia programme in 2010 as a provision of services (for a fee). The second phase thus seems to be very much lagging behind as far as planned CP assessment and services provision is concerned, except for the comprehensive audits²⁶. The trained CP auditors from outside do not seem to have conducted any audits on request of enterprises for a fee so far, other than participation in CP activities assigned by the Project. No monitoring of CP auditors has been undertaken to see how active they are and to find out the problems they are facing in providing services. The Team is therefore of the view that the NCPC seems to have lost the focus on its core services with diverse activities in their portfolio, and on the other one hand non-availability of trained auditors for services would have caused this situation.

One reason for lack of demand for services, and thus the shortcoming in reaching the targets, was pointed out by NCPC to be the unwillingness of Sri Lankan enterprises to divulge information to outsiders. Another reason for low performance of NCPC in providing expected CP services would have been the perceived substantial “risk” of CP in Sri Lanka. The reason is that *commercial* application of CP (excluding energy efficiency) in the country is still in its initial stages, and driven so far by a “push” strategy, through donor funded projects, rather than a “pull” strategy of investments by the industry. Industrialists still see it as a somewhat risky option to give CP priority over other investments, i.e. industrialists do not see good return of investment in CP measures when compared to other proven investments. Additionally, unfavourable framework conditions prevailing in the country such as lack of finance for CP investments, lack of fiscal incentives, ineffective enforcement of regulation, giving more attention on energy than other issues due to high energy prices. Also factors like weakened capacity within NCPC due to high turnover of senior staff, weakened attention paid to the Centre by the host ministry, with frequent change of leadership and lack of good monitoring, and follow up of NCPC on its core services at required levels, might have contributed to this situation. Even after reaping benefits, very few beneficiaries have taken an initiative to contact NCPC for further services, as enterprises tend to forget and postpone recommendations. One enterprise suggested NCPC to be more proactive with follow up if they are to be more effective²⁷.

NCPC has worked with several projects, although not long-term, and only certain specific activities have

²⁴ Another source says 114 quick and 31 comprehensive assessments during 7-years period at the rate of 16 quick scans and about 4.5 comprehensive assessments.

²⁵ UNIDO in their comments to the Draft Report claimed that 49 comprehensive audits have been undertaken, but this is not the figure provided by the NCPC.

²⁶ The centre management seems not to be aware that the performance of some activities are lagging behind and was of the view that the target for Comprehensive Audits have been “fixed” taking the audit conducted by trainees are also into account.

²⁷ During the visit to beneficiaries the Team came across a hotel which had won several CP awards and was very active in the programme for some time and have now come to a standstill due to change of staff. The present staff is not aware of anything about CP though they are willing to revive it. If there was a regular follow up by NCPC even with a small reminder with refreshing their knowledge the process could have been made sustainable and generate demand for services.

been carried out for a small (non cost-covering) fee and for government projects it has been free of charge. Conducting assessment of industries/enterprises, providing training, undertaking studies, assisting implementation of pilot project, etc. are the activities carried out (see *Table 3.8, Appendix 1*).

3.1.6 Conducive Policy and Regulatory Framework are Strengthened and Enforced

This has been one of the intermediate objectives of the project logframe given in the Baseline Survey, and it had been a main focus of the Project since its Phase I. This is one of the essential conditions needs to be fulfilled in order to create an enabling environment for application of RECP processes at industry and enterprise level. Despite the fact that NCPC is a project positioned at the Ministry of Industries, which is also *en par* with other line agencies, the influence that it could make on *other* line agencies in implementing activities and realising the outputs needed to achieve this objective through them, seems to be very limited. On the other hand it seems no mechanism has been established within the Project to implement this objective or monitor it. Though the Project had a Steering Committee initially and later an Advisory Committee to address this kind of issue, it seems that it has not been effective at all in addressing such (it have not discussed or met regularly with required representation of line agencies). Lately, this AC became dormant for more than 2 years during Phase II. Thus NCPC could play only a facilitating role to realise this.

Even prior to NCPC Phase I this condition had been fulfilled to a certain extent in Sri Lanka (see below). The National Environment Act was passed in 1980 and thereafter Central Environment Authority was established in 1981 to implement the Act. The Ministry of Environment was established in 1990 and Environment Protection Licensing Scheme was introduced in 1990, and the Ministry thereafter came up with a National Environment Action Plan now it is called “*Caring for Sri Lanka*”. However, these policies and regulatory framework were mainly introduced to tackle the end-of-pipe treatment more than application of RECP processes.

During Phase I NCPC conducted awareness in the public sector and actively initiated a “National Policy and Strategy for Cleaner Production” and CP policies/strategies for 4 other sectors. Phase II of the Project decided to focus its attention on four sectors namely; Plantation, Textile, Tourism and Agro-based industries. NCPC has undertaken awareness and capacity building programme for public sector official on CP to enhance their knowledge on formulation of policies and regulations. In addition special workshops have been conducted for policy formulation in Plantation and Agriculture sectors. However, out of the 4 focus sectors only a sector policy for Tourism has been developed and the other 3 sectors are yet to come, although it was planned to finalize formulation of policies for Agriculture and Plantation also during Phase II. The Plantation sector policy is still under development, involving four different ministries. The frequent change of portfolio of the ministries seems to have made co-ordination and keeping the momentum of this process more difficult for NCPC, and although some policies are ready for issuance since Phase I, transforming them into action has still a long way to go. Therefore implementation and enforcement became less effective. The Project nevertheless seems to have been effective in influencing the policy makers, and these bodies claim they frequently sought the advice and assistance of NCPC. NCPC conducted awareness programmes for officials and NCPC has been recognized as a competent body to represent policy committees.

According to CEA the awareness at policy level and the NCPC facilitation at that level have led CEA to propose some amendments to national environmental act to make annual CP assessment mandatory for industries in the future. The Review Team considers this a commendable tangible achievement. The CEA has a provincial network of sub-offices to implement EPL schemes. However, the enforcement of regulation has been somewhat weak due to a number of reasons, such as low capacity, low political will caused by consciousness on economic growth and popularity, etc., all factors notably outside the control of NCPC.

3.2 Project Efficiency

There are three broad “outputs” produced by the Project (although they are not formulated like this in the logframes):

1. The stakeholders are made aware of the issues associated with environment pollution and the benefits of CP to the industry as well as for the environment.
2. Persons trained to provide different CP services to enterprises so as to apply CP continuously.
3. A competent self-supporting NCPC to sustain the services.

It is very difficult to get an accurate estimate of the cost of these outputs separately due to lack of data. However, an attempt has been made to estimate the unit cost of these outputs, and thus see how efficiently the inputs have been used to produce them, using the estimated and actual costs provided by the NCPC for planned outputs (see *Table 3.9, Appendix I*).

In Phase II, 64 programmes of awareness raising (3,125 participants) were conducted (against target 54). The estimated cost was USD 67,000 (LKR 8,710,000), but the expenditure had been USD 70,184 (LKR 9,123,920). Thus the output has been increased by 18% compare to the target, with only 5% increased costs, so in terms of the *quantity* it has been efficient. However, the cost per participant amounted to USD 20 (LKR 2,650). This seems to be slightly on the high side for an awareness creation programme, as it is mostly less than ½-day programme. If the cost of NCPC national staff is added to the cost, awareness would be more expensive. 546 man-months of national experts were at the disposal as input to this kind of programmes, and that input has partly been used for awareness programmes. If we look at the efficiency of using this input it comes to about 8.5 mm of national expert per programme. If we allow half to be used for training even then the input seem to have not been used efficiently in Phase II.

Information dissemination is another component in the Project for awareness creation through various means. CP Awards have been very important, but it has been rather costly. The CP Award ceremonies seem to have costed USD 124,000 (LKR 16,120,000), with 4 events and 109 participants, giving the cost of one participant approximately USD 1,150 (LKR 150,000). This is far too high by Sri Lankan standards. This needs to be taken into account in the future, with some measures to increase the number of participants²⁸.

Lots of print and electronic media have been used for awareness creation. The print media seems not to have been used efficiently, while the produced ones were not properly disseminated and others not produced in time and not printed yet. The total cost of this item amounts to approx. USD 12,000, but information regarding number of copies printed and distributed (and feedback on them) were not available.

The total expenditures of all awareness creation activities during Phase II amounts to approx. USD 277,000 (LKR 37.0 million), being a large sum in Sri Lankan context. With such a big investment on awareness raising, and even providing some services free of charge, or significantly subsidised, to the enterprises, the Project has only been able to service approximately 300 enterprises (USD 900/enterprise). Out of these services only about 35% comprised full assessment, others are simple services such as quick scans. If national expert cost is added, the cost will go up by another 25%. The outcome of the services is not known, as it has not been monitored. However, the Team's field visit showed that a few number of services had a large impact on those enterprises. Of the USD 227,000, the cost of all the services provided by NCPC is USD 148,000. This means that of USD 1.80 spent for awareness only USD 1.00 worth of NCPC services is provided. This kind of proportion could have been justified during Phase I when the concept of CP was totally new to the clients. However, during Phase II this cannot be justified and is thus not considered efficient.

Training is the other important output produced by NCPC (4 categories). Some training was conducted for the benefit of industry personnel and other stakeholders, while CP auditors training and university academics training have been conducted with a view to *increase the capacity* to service the enterprises and students respectively. This training produced 89 academics and 82 CP auditors respectively. Altogether 43 training programmes have been conducted with the participation of 1,252 participants with an investment of approximately USD 72,000, the unit cost being USD 52, which is reasonable and efficient. If we take two main components: CP auditors and university academics, the picture may be different as far as efficiency is concerned. Only 82 CP auditors have been trained so far with an investment of approximately USD 52,000, a unit cost of USD 635. 89 academics were trained with USD 20,000, the unit cost approximately 1/3 (USD 225). While the outcome of CP auditors training is very low the university academics training seem to be very high.

²⁸ In order to increase participation this could be conducted at two levels, one at provincial or district with the participation of regional chambers and other at national level. In this manner the number participating could be increased by providing opportunities for SME in the geographical periphery to participate and it will open the door of those enterprises to CP.

According to the budget the target on consultancy and advisory services was 75, with achievement only 57 (76%). On the other hand the unit cost has increased by 35%. These services are not auditing type assessments, they are simple services provided by the Centre. The service unit cost amounts to USD 415. It is difficult to comment on efficiency without knowing the nature of the particular service.

The provision of project proposal service has not been that successful. It achieved 50% of the target with an investment of USD 13,000, the unit cost being USD 440. It is difficult to comment on this cost, but it seems far too high for this service for the small and medium enterprises in Sri Lanka.

The project overall efficiency could be calculated taking the project implementation management cost and project activity cost. In the case of NCPC, the activity cost does not include the international expert, national expert and administration cost (see *Tables 3.10 and 3.11, Appendix 1*). Therefore it would be appropriate to include these costs as *project implementation management cost*, while the activity cost is taken as *project investment cost*. Without international expert cost, UNIDO administration cost (13%), and capital the total implementation management cost of NCPC Phase II (for a 3-year period) amounts to USD 636,000. However the investment made for activities and outputs during this period with this management cost is USD 426,000. Thus the Project seems to have spent nearly USD 1.44 for implementation management to invest USD 1.00, meaning the implementation management cost of NCPC has been 144%. This is not acceptable by any standards, so it seems that the overall efficiency of Phase II is very low. Even without international and national expert and administration cost, taking only the recurrent cost, maintenance and office expenditure, the project management cost amounts to 64%. It means that in order to invest USD 1.00 the NCPC has spent 64 cents. This also is too high. It would be very difficult (read: impossible) to sustain the Centre as a fee levying commercial service organization in the future with this level of efficiency.

According to the expected and realised income from the services and other implemented projects by NCPC, the income earned is around USD 100,000 per annum. It is less than 15% of the expenditure (see *Table 3.12, Appendix 1* on expected income from national industry and international programmes). However, when seeking clarification on these income figures the Team found that the figures are somewhat misleading. Though the figures are given as *income* it is not a *net* income for the NCPC. There is a cost for each item incurred under the budget and that cost is not given in the table. When that cost is taken in account, the net seems to be very marginal and insignificant. There has been no donor for NCPC other than Norway, it has only received some funds as explained for the provision of services and project implementation. Among them, the largest sum has been received from UNEP, USD 75,000, to implement two pilot projects related to biomass energy. Another similar project expected from SWITCH Asia have not been realised.

3.3 Impact with Beneficiaries

(As a backdrop, reference is made to the tables referred to in the previous section, listing the outputs of the awareness raising and training events, in addition to the number of audits and consultancies etc. undertaken in Phase II).

It was difficult to carry out a comprehensive *quantification* of the significant benefits accrued to the industry from the Project, owing firstly to the lack of availability of assessment reports and information on implementation of CP recommendations, and secondly to the inconsistencies observed in the available information²⁹. Therefore, the assessment of benefits to the industry had mainly come from the information received from and observations made of those industries visited during the review period (see *Table 1 in Appendix 5. Table 2* shows proposed investments and financial savings in some other industries). According to the information received from NCPC, 40 industries (11 hotels and tourist resorts, 4 textile/garment factories, 3 metal and cable manufactures, 6 rubber/tire industries, 3 agro based industries, 6 chemical industries and 7 miscellaneous industries, see *Appendix 4*) have been provided with CP related services during Phase II of the Project. Of these, the Review Team could visit only 8 beneficiaries. In addition, 4 other industries and two national Universities, for which NCPC has extended their CP services, were visited.

²⁹ The Review Team (RT) specifically asked the centre management, at the inception of the Review, to provide the reports of the CP audit the NCPC has carried out, especially for the industries that the RT should visit. However, the management declined to give the reports saying that the reports contain some confidential information of the industry concerned which NCPC cannot divulged to a third party (meaning the RT). A summary of recommendations of these audit reports too were neither made available to the RT nor any subsequent monitoring reports.

It was noticed that the majority of the CP options implemented are related to energy. According to industrialists, energy is one of the priority areas for improving resource efficiency because energy cost is increasingly becoming a major cost factor in their operations. Listed below are some of the important positive energy efficiency measures undertaken by the industry.

- Introduction of CFL and LED systems as energy efficient lighting.
- Improving the overall power factor of the facility, either augmenting the existing capacitor banks or fixing additional capacitor banks to reduce the maximum demand.
- Introduction of sub-metering to monitor and regulate electricity consumption of principle energy cost centres of the facility.
- Introduction of process modifications to reduce idle time of machines and to eliminate duplication of process steps.
- Adjusting and maintaining compressed air pressure at the optimum level required by the process concerned. This, while eliminating the compressed air losses, improves the process efficiency and ensures the safety of the equipment. In some cases where compressed air is used to spray powdered materials, maintaining correct air pressure will reduce material waste.
- Improving the biomass handling and feeding system in factories where biomass is used as energy.
- Drying biomass well before feeding into the combustion chamber – e.g. hot air generators in tea industry, biomass boilers, etc.
- In hotels, introduction of key-card system in guest rooms to ensure the lights are switched off and the air conditioner is switched to an energy-saving mode when the guest leaves the room.
- Introduction of inverter-operated air conditioning instead of standard air conditioning systems in guest rooms where individual air conditioners are used³⁰.
- Introduction of manual timers to switch on/off lamps in certain specific locations.
- Replacing over capacity motors by suitably rated motors so that load factor is maintained at around 75%.
- In hotels, fixing Solar Water Heaters to provide hot water to guest rooms.
- Fixing auto door closers to entrance and exit points of air-conditioned spaces (guest rooms and function rooms in hotels, offices in industries, etc.).
- Fixing of live steam leaks – leads to conserving both energy and water.
- Recovering condensate and returning to the boiler – leads to conserve both energy and water
- Insulation of hot surface, such as steam lines, to reduce heat losses.

Water consumption has been another major area of CP interventions, both because of scarcity of safe water and gradually increasing cost of supply. The following measures have been implemented:

- Fixing all water leakages in the facility.
- Introduction of low flow taps and showerheads in order to reduce wastage at user point.
- Introduction of dual flush toilet cisterns (two “buttons”) to minimize water wastage during flushing.
- Offering the guests (in hotels) the option of reusing the bed linen and towels.
- Harvesting rainwater (for irrigation and watering of green areas).
- Appropriately sizing the water nozzles used in general cleaning of equipment and production floors in order to get the dual benefit of improved effectiveness of cleaning and reduced water consumption.
- Recycling of vehicle wash water in industries with a large fleet of commercial vehicles.
- Re-using water used for process cooling after sending it through a cooling tower.
- Sub-metering water consumption of major consumers in order to monitor and control water use and minimize wastage.
- Primary treatment wastewater and use it for gardening.
- Using steam indirectly when possibility exists and recover condensate and reuse in the boiler in order to reduce water consumption.

Another important area addressed by CP is waste management, mainly connected to reducing, re-using and recycling options. Some of the measures taken by industry are as follows:

- Process modifications to minimize the generation of waste.
- Introduction of alternative materials to reduce waste both during manufacture and use.
- Re-designing the product to minimize waste generation during manufacture and use.

³⁰ Some hotels are in the process of experimenting with Solar Hybrid Air Conditioning systems for achieving greater energy efficiency.

- Process automation to reduce waste and improve productivity, also leading to reduced energy use.
- Segregation of solid waste at source – plastics, glass, paper, metal, etc. and selling to external vendors.
- Composting bio-degradable waste and use in gardening.
- Recovering lubricant oil (a costly item) that goes with waste generated in metal cutting processes. Centrifuging the waste can recover substantial amount of this oil and reuse.
- In industries where chemicals are used in large quantities, “Chemical Leasing” concepts are introduced to reduce waste and improve safety in use.
- Treating sewage, and sometimes kitchen waste anaerobically and producing biogas and using the digested material as a soil conditioner in gardening. Biogas is used in the kitchen replacing part of LPG.
- Re-cycling the waste material generated from samples taken for QA purposes in Readimix (concrete) plants to produce value added products, such as paving bricks.
- Using water sprinklers, instead of hoses, for watering gardens for better effectiveness and reduced consumption.

Introduction of CP into the university academic curricula has been a major achievement of the NCPC. At University of Colombo, CP is now a regular course module in *science* streams, and at University of Moratuwa CP has been introduced as a course module in *engineering* streams. According to NCPC similar CP programmes have been introduced to the academic streams at several other universities in the country. This intervention has laid the necessary foundation for developing skilled manpower for sustainable application of CP in the industrial sector in the future.

Some of the benefits already accrued to industries visited during the Review are summarized in *Appendix 5*. The potential benefits identified are several, and these industries have mostly implemented low to medium cost options and are in the process of implementing high cost options. One of the barriers preventing the implementation of high cost options is the non-availability of suitable financial mechanisms to support such investments. Another difficulty raised by the industry is the lack of cost-benefit analysis of options recommended in the CP audit reports, where sometimes savings are indicated without giving the technological interventions required and the investment needed to realize them. In such situations, the industry has to get the services of a third party at an additional cost in order to get the correct picture and assess the economic feasibility, simply making the suggestions given in the previous audit report operational. Overall, despite such shortcomings, the CP interventions have benefitted the industry greatly and many industrialists have expressed satisfaction in the services offered by the NCPC.

3.4 Project Administration and Management

UNIDO has implemented the Project based on the *Administrative Agreement* signed with the Norwegian Embassy (10.11.2009). This Agreement was again based on the *Framework Agreement on Financing of Technical Cooperation between UNIDO and Norway* (dated 20.03.2006). UNIDO retains 13% of the project funds for administration, mainly related to financial management and disbursement of funds in addition to arranging for international TA to support the Project. The *actual* costs of the TA coming from UNIDO (travel and time spent) are covered from the project budget, not included in the 13%.

The Agreement specifies the reporting requirements (annually): “... *progress shall be reported with reference to the planned outputs, result indicators, time schedules and budgets*”, and the Framework Agreement states: “*An annual report that provides detailed information on the achievement of the objective of each programme or project and include a progress report, giving information on outputs compared to targets, work plans and time schedules, use of inputs, problems encountered or foreseen and other information related to the implementation of the programme or project*”. As seen in the section on reporting, this required contents of the reports has only partly been fulfilled.

The Agreement also states that the Steering Committee meetings should be held annually and that the Embassy will be invited. Firstly, it should be noted that the Steering Committee in the second phase was called *Advisory Committee* (AC). Secondly, this AC has not functioned according to the intentions, and only 3 meetings have been held in Phase II (all in 2010)³¹. Obviously the Chairman from the Ministry of Industry and Commerce did not call any meetings after this, as “*he saw no needs*” for the AC to meet. This was not

³¹ 18 January, 10 August and 26 November. The last SC meetings in Phase I were held 9 June and 25 September 2009.

properly explained to, nor understood by, the Review Team, as the AC could have been instrumental in giving strategic guidance to the NCPC management on focusing the centre activities and especially preparing for the institutionalisation and sustainability of it. This was indeed a lost opportunity.

The observation of the Review Team is that at large the management and administration of the technical CP-related centre activities (e.g. awareness raising, training courses, coaching in industries, etc.) have been professional and satisfactory to the beneficiaries. The communication and cooperation between the national experts and the industries was unanimously praised by the beneficiaries, and also the follow up from the NCPC during the course of conducting CP assessment on site, and immediately afterwards (with a few exceptions), seems to have been satisfactory. The monitoring and follow up post-activities, when the reports were submitted, has *not* been satisfactory. The inputs from the international experts in lecturing and advice-giving with the beneficiaries has been appreciated and useful (list of visits enclosed in *Table 3.13* in *Appendix 1*). The follow-up visits by the Project Manager from UNIDO in Vienna, in average three times per year during Phase II, have clearly been appreciated by the centre management.

However, it seems that the activities still have “gone with the flow” (as expressed in the Appraisal Report), meaning following largely the same pattern as in Phase I, with little *strategic* thinking around the business of the Centre, especially when the external funding ends. In the Review Team’s opinion, the preparation of the Business Plan (BP), now in progress, should have been initiated much earlier, preferably in Phase I, but at the latest in the start-up of Phase II, to avoid the “rush” towards the end of the Project (the Appraisal Report actually asks for preparation of an “exit strategy”, being closely connected to the BP). In this way a gradual and much smoother transition from “project to business” could have been secured.

The NCPC has been managed as a “project” up to almost the very last minute, and even after institutionalisation in May 2013, it has been “business as usual”. Also in the discussions with the centre management, the Review Team got the clear impression that sustainability should be secured post-project by applying for more project funds from various donors and international financing mechanisms, and not through the selling of CP services to the industry³². It is also observed that follow-up and implementation of some useful recommendations from the previous review and appraisal (in Phase I) have not been given the required attention in Phase II. Combining sound CP services with sustainable business does not seem to have been given the required attention. The Review Team is highly surprised by this, as UNIDO has excessive experience from such centre’s around the world and should have put a much harder pressure on the centre management to prepare for self-sustainability long time ago, even if the formal institutionalisation was not in place until the end of the Phase. The strategic thinking, and the required grips, should have been undertaken much earlier. All the key parties involved have to take responsibility for this serious shortcoming. Observations made by the Team also clearly indicates that the management has not given enough focus to the operation of the Centre itself (library, laboratory, equipment, office facilities, etc.), which again is closely connected to the lack of business-mind thinking of the Centre. This is briefly elaborated below.

3.5 Project Reporting

The “*Annual Reports*” (ARs) of 2010, 2011 and 2012 were made available to the Review Team. It is also noted that “*Annual Progress Reports*” (APRs) are prepared, and understand that those are made in a specific format required by UNIDO. The Annual Reports contain largely the same information as the APRs, but with photos from various events, and is meant for a wider distribution amongst stakeholders. The RT does not understand the reason for this doubling of reporting efforts. It could have been avoided by the project partners agreeing to *one* reporting format to be used from the beginning.

Quarterly Progress Reports (QPRs), including financial overviews, were submitted by the Centre to UNIDO every year, except in 2011 when two half-yearly reports were submitted³³. All the information in the QPRs are also found in the Annual Reports. Additionally the RT got a copy of “*1st Half year report 2010*” prepared by the UNIDO Project Manager (and not the Centre), which also repeats the information given in the Annual Reports. Also a report covering January-August 2012 was made available to the Team. This reporting modality is not properly understood by the RT, as it seems to have been too much overlapping

³³ In 2011 UNIDO changed the contract modality to “sub-contracts”

efforts put into reporting. However, UNIDO claims that reporting has largely been undertaken as indicated in the Project Document³⁴.

More importantly is the *format* and *contents* of the Annual Reports, where a systematic reference to the achievement of the targets presented in the Work Plan for the year is lacking. It therefore requires significant efforts to find out whether the planned targets were really achieved or not, and mostly the targets were not defined in the work plans. This lack of result-based reporting is a serious shortcoming in the reporting, and it is noted that this has repeatedly been commented upon by the Norwegian Embassy in the Annual Meetings, without this improving the reporting.

Also, it is noted that the format of the 2010 and 2011 Annual Reports are similar, but the 2012 AR is different, somewhat more elaborate (amongst others it contains a revised risk assessment, which is commendable). Additionally, it is noted that several of the documents issued by the NCPC are lacking dates, and name of author, likewise headers and footers on the pages. This is confusing to outside readers, and should have been easy to improve. It is a shortcoming that some of the CP audit reports submitted to the beneficiaries following comprehensive CP assessments, are lacking both date and name of auditors, some even lacking the name of NCPC. It goes without saying that such information should have been there, as it would clearly facilitate the follow up and monitoring of the measures suggested in the reports. It seems that there has been no standard format instigated on the CP audit reports, and some of the reports do not have a summary (which could easily have been read by the company executives). Some of the reports also lack cost-benefit analysis and some lack *operationalised* recommendations to facilitate implementation by the beneficiaries. Also, some data collected during assessments/audits are not included in the reports.

3.6 NCPC Sustainability Issues

Sustainability in the Project relates to several issues, where the two main relevant ones are: 1) whether the positive *effects* of the Project are likely to continue with the beneficiaries; and 2) whether the NCPC will be able to continue and sustain its services also post-project; both issues *without* continued significant external financial support. The two sustainability issues are elaborated upon below.

3.6.1 Sustainability with the Beneficiaries

The interaction by the NCPC with the beneficiaries has comprised awareness raising, CP assessments in the industries and direct CP lecturing of students as part of university curriculum. The two latter continuing really depends on the beneficiaries being able to pay for the services of the Centre, as the services will not be free of charge, or subsidised, anymore³⁵. Based on the discussion with the various beneficiaries, the Review Team unfortunately got the impression that most of them do *not* have the financial strength to pay the *market* price for the services. This specifically goes for the universities, which at undergraduate level (BSc) are providing the lecturing free of charge to the students, as the education is directly supported by government funding.

At graduate level (MSc), the students are paying for their education, so in principle it should be possible to charge for lecturing, although in general the payment ability of students is not very good, so paying market price for consultants to lecture is realistically not feasible (e.g. University of Colombo). In other universities, the employed lecturers have been trained in CP and can, and will, continued lecturing themselves, without support from the NCPC. Also, the cases where students work with the NCPC staff in industries, as a practical part of the education, could continue as long as the universities cover the cost of the students. Any follow up beyond this should be paid for. It was even mentioned to the Team that the Dept. of Material Science & Engineering at the Moratuwa University is not longer linked directly with the Centre³⁶, and could now assist the industry themselves, charging a fee, which would be in direct competition with NCPC. Such direct interaction with industries is nevertheless essential to the students, as they get in touch with potential employers post-graduation.

³⁴ UNIDO specifies that the Project Summary in the Agreement has not been used as basis for reporting as it is not sufficiently detailed and specific.

³⁵ It was informed that a “symbolic” fee of LKR 500 was paid directly to the lecturers from the NCPC at Moratuwa Univ.

³⁶ Which is not entirely correct as the lecturers from the NCPC is e.g. using the centre vehicles for transport.

In the industries that have participated in the project, getting mostly free of charge services from the NCPC so far, the awareness of CP has largely been raised. Once the industries experience reduction in costs following from the CP measures (which is the main driving force), they will continue the efforts themselves to do more, as long as they have the financial means to do it. With all beneficiaries, a CP team has been established and the Review Team saw good examples of such continued improvements instigated internally by the beneficiary staff without input from NCPC. It is therefore assumed that in most cases, the efforts started will continue with the industries and thus are to most degree sustainable³⁷. In some cases, however, it is assumed that the services of NCPC are also needed in the future, especially the need for refreshing courses/training at regular intervals. Such courses have to be paid for³⁸.

3.6.2 Sustainability of the NCPC

a) The CP Market

The potential CP market has also been touched upon in the previous sections. Creation of an energy efficiency market in Sri Lanka goes back to late 70s when the OPEC increased the oil prices several folds for the second time in few years. Of the many initiatives taken by the Government to check the impact on the economy, establishment of an Energy Conservation Fund (ECF) (1985) and setting up an Energy Management Centre (1985-86) at the NERD Centre were major ones. Since then the market for energy efficiency has been developing and many players (see *Section 3.6.2. c*) for details) are now active in serving this market in a competitive environment. In another strategic move the ECF was transformed into an authority named Sri Lanka Sustainable Energy Authority (2007) with added powers to promote energy efficiency and renewable energy.

On the other hand Central Environmental Authority (CEA) was established in 1981 to policing and regulating for protecting the environmental. Since then many initiatives have been undertaken to protect the environment such as EIA, Environmental Protection Licensing (RPL), emission standards, pollution limits, environmentally friendly technologies, etc., being implemented in a legal framework. This has created substantial need/potential for associated services, with various organisations working in a competitive environment today.

The newest “addition” to this is the CP way back in 1995 and NCPC in 2002. Over the years the CP market (parts of which are already in an advanced state as described above) has been slowly created. In fact CP has expanded the previous portfolio by incorporating elements that were not addressed earlier.

As described above, and looking at the number of players operating in this market (*Appendix 8*), it is fair to say that there is already a market for *some* CP-related services such as Energy Efficiency, Waste Minimization, Noise Mitigation, Environmental Management, etc., but it must be developed further for core CP services, valued on “Reduce, Re-use and Re-Cycle”, such as Material efficiency, Water Efficiency, Chemical Leasing, Life Cycle Analysis, Green Purchasing, etc. At the same time, and partly due to subsidised and free services provided by NCPC, the mindset of SMEs is that this kind of services should be provided free of charge (as it previously has mostly been) and their willingness to pay is thus very low. The big enterprises (exporting) use these services, but not from outside, as they often have competence in-house or are getting services from outside the country. Hence, a limited CP market is developed only in Colombo and vicinity, and in the larger tourist resorts. Therefore, the market for such services needs to be further developed, especially in the provinces. CP market development is costly, and needs grants investment, as private sector will not invest on such development. Very correctly, NCPC seems to have identified this problem and invested in creating a demand by awareness and training while developing the capacity of service providers. However, even after 10 years of investment both in demand and supply it seems to have not been effectively created, although the existence and survival of competitors in the market shows that a certain market already exists.

The *needs* however, are still there. Increasing costs, scarcity of supply and environmental impacts associated

³⁷ Ocean View Hotel visited by the Team was an example of the opposite.

³⁸ An example was one of the hotels visited by the Review Team, where the whole management had been shifted over a period of less than 1 year, and where nobody knew what had happened earlier with CP, and everything had come to a halt. Neither had NCPC approached them to follow up/start anew with CP awareness raising.....

with the use of resources pose huge challenges to the enterprises to carry out their businesses in a sustainable manner. Moreover, complying with environmental regulations, that become gradually stricter; make things more challenging to businessmen. With the introduction of resource efficiency tools, such as CP, energy management, environmental management, chemical leasing, performance certifications and the like, these enterprises now have the proven means of facing these challenges. The initiatives taken by the NCPC, and other organizations, have gradually established the confidence in the minds of some industrialists that CP intervention is a good way to address resource efficiency in their establishments.

The Sri Lankan market for resource efficiency based activities should however, in principle, be quite large. By the end of 2011, there were 906 establishments providing tourist accommodations in the country, of which 252 are categorized as hotels³⁹. In addition, there were 2,731 manufacturing industries, each employing more than 25 persons, operating in the country in 2010⁴⁰. Of these industries nearly 700 are tea factories and around 300 garment factories. According to the experience of long-term service providers in resource efficiency, such as NERD Centre and ITI, all industries including hotel sector have problems in using resources efficiently and complying with environmental regulations.

Energy stands out as the most important resource that industrialists need to manage and conserve on priority basis, followed by materials, water and waste. According to ongoing Greening Sri Lanka Hotel Project funded by EU SWITCH Asia programme, there is a potential to save around 20% of energy and 20% of water consumption and waste generation in the hotel sector. Ceylon Electricity Board statistics show that the electricity consumption by hotels amounted to 202 GWh in 2012. This means that the electricity saving potential could be as high as 40.4 GWh per annum, equivalent to around LKR 699 million per annum⁴¹. This by any means represents a big market for savings of energy in the hotel sector. Tea industry is one of the key plantation sector industries having some 700 factories in different regions of the country. According to studies carried out by Sri Lanka Sustainable Energy Authority (SEA), tea industry consume nearly 5.7% of total electricity consumed by the industrial sector (around 182 GWh in 2012), and nearly 620,000 metric tons of fuel wood annually. Several energy audits undertaken in the tea sector has identified an average energy conservation potential of up to 20% in electricity and 18% in fuel wood consumption. This means that the potential savings amounts to 36 GWh in electricity (around LKR 482 million at LKR 11.66/kWh) and 111,600 metric tonnes of fuel wood (around LKR 558 million at LKR 5/kg) per annum. This again represents a substantial market for saving energy in the tea industry. It should be noted that tea industry is mainly spread out in provinces remote from Colombo.

Apparel industry is another major sector having well over 300 factories operating in diverse locations in the country. Studies on energy efficiency carried out in this sector have revealed that energy conservation potential range from 15% to 30%.

As shown above there is huge potential for energy efficiency improvement in the industrial sector. Water conservation potential in industries is not readily available, except in the hotel sector. But, visits made to beneficiaries by the Review Team revealed that substantial potential exists in industries for saving water. Considering this analysis and taking into consideration the development plans in the country in the tourism sector and in the manufacturing sector, there is a huge potential, and need, for improving resource efficiency in the country. It is the responsibility of the service providers in CP and energy efficiency to come forward, market themselves and serve this latent market. Their strategy must include developing and marketing resource efficiency products that are attractive and affordable to the client.

It should also be mentioned that despite the present potential for efficient energy efficiency improvement, realization of these savings are quite slow, even though many enabling environments and initiatives have been introduced since 1984. There could be several reasons for this, among others: a) Energy represents a relatively small percentage of total cost of production/service in many industries, and hence priority for addressing energy efficiency issues are rather low when compared to other production factors; b) Service

³⁹ Statistical Report 2011, Sri Lanka Tourism Development Authority.

⁴⁰ Annual Survey of Industries 2011, Dept. of Census and Statistics.

⁴¹ At current electricity tariff for hotels whose demand is more than 42 kVA (most of the medium to large hotels will be in this range). The average cost of electricity is LKR 15.05/kWh, plus 15% fuel adjustment charge.

providers offering complete package for energy efficiency measures are hard to find⁴², and c) Lack of regulations to curb environmental impacts associated with energy use (e.g. carbon tax, etc.).

One specific potential area of service would be to link services with the Environment Protection Licensing (EPL) scheme implemented by CEA to facilitate industries to comply with EPL requirements. According to CEA there are 4,000 high polluting industries which need CP services, and 9,072 and 13,498 small and medium industries coming under A and B category of EPL status respectively. Of these two categories there are 2,000 and 5,000 industries coming under A and B categories that have not obtained EPL yet. This would be a good opportunity for the NCPC to provide awareness and services to obtain EPL. The present capacity may not be enough to serve that many industries unless suitable strategy is formulated.

b) Enabling Environment

The enabling environment varies from favourable policies to provision of fiscal and monetary incentives, regulatory framework demanding to comply with cleaner production requirements or pollution control, general public awareness on pollution, its consequences and regulation and their rights, awareness and willingness to apply CP among enterprises, international CP standards to comply with and availability of financing CP options. Policies, regulations and level of enforcement of them are key factors. Environmental awareness and civil society pressure for enhanced environmental standards (also from customers abroad) are fairly high in Sri Lanka. On the other hand, CP policies and Environment Protection Licensing Scheme for industries were installed as far back as 1990 with required institutions to implement them. Further amendments to the Environment Act of the country favourable to promote CP technologies are in the pipeline, according to CEA. However the enforcement of regulations has been somewhat weak due to various reasons, such as low capacity, low political will due to consciousness on economic growth and popularity, etc. On the other hand, among industrialist there is a lack of awareness about CP options and their advantages to them and the country and society at large. Recent incidents associated with industrial pollution, creating very big political problems in the country, have become a real eye opener and therefore future for CP seems to be good.

c) CP Market Competitors

The increasing demand for CP-related services has made several organizations marketing services, now they operate in a competitive environment. There are 43 consultants and specialists registered with the Central Environmental Authority (CEA) providing services in the areas of wastewater, solid waste, air pollution, noise & vibration, environmental planning & management and CP, all listed in *Appendix 8*. In addition, there are 30 laboratories registered with the CEA for providing testing services related to environment (list in *Appendix 8*). Moreover, there are 23 institutions offering Energy Audit Services, and 21 institutions (some of these institutions are under the Energy Audit services as well) with Energy Efficiency Services, registered with the Sri Lanka Sustainable Energy Authority (SEA) (list in *Appendix 8*). Some of the major players (with services listed in *Appendix 8*), and competitors to NCPC are: National Engineering Research & Development Centre (NERD Centre); Industrial Technology Institute (ITI); and Industrial Services Bureau (ISB).

d) The Institutionalized NCPC

NCPC was finally institutionalised in May 2013, registered with the Registrar of Companies in Sri Lanka as a so-called *Company by Guarantee Ltd.*⁴³ In this case NCPC is going to be a service arm of two chambers as their members will be the beneficiaries. The management of the NCPC has continued as before, and the Advisory Committee that was established for the Project, has seized to function (it never functioned anyway). A Board of Directors (BoD) with 9 Directors (listed in *Table 3.14* in *Appendix 1*) has been

⁴² For example some offer only consultancies (say energy auditing) and others offer only implementation of energy efficiency measures (application of energy efficient technologies). This situation leads to higher risk in the investment, lack of responsibility and higher cost, (NB: organizations offering full package are only emerging now).

⁴³ According to the information that the Team received verbally, NCPC seems to have made a real struggle with the Ministry of Industries to institutionalise the Centre. With the change of secretaries of the Ministry, which seems to have happened frequently in the recent past with the change of cabinet, the ideas of the top management of the Ministry regarding this issue seemed to have changed from time to time. Some were of the view that it should be institutionalised as a foundation or trust, bringing an Act of Parliament, and some were of the view that it should be run as a company. Finally when it was delayed up to the end of the Project, and as the option with Act of Parliament would take much longer it was decided (also national lawyers advice to go for the present model, not “by choice” so much as “by default”).

appointed, being overall responsible for the running of the Centre, and an Advisory Council of more technical staff will be appointed, as indicated in *Figure 2.7, Appendix 1*. The Review Team noted the following:

- The two owners, and founders, of the new NCPC are: Ceylon National Chamber of Industries (CNCI) and National Chamber of Expert, representing the private sector. The operation of the Centre will now have to base its operation on pure business principles, based on a business mindset that is different from before.
- It is noted that some of the public partners that sat in the Advisory Committee of the Project, now have been appointed as members of the BoD for the new company, namely: Min. of Industry and Commerce, Min. of Environment and Renewable Energy, National Engineering Research & Development Centre (NERD Centre), University of Moratuwa, and Sri Lanka Sustainable Energy Authority.
- These public members have the majority in the BoD, with 5 representatives, as opposed to 4 representing the owners⁴⁴. This is indeed an extraordinary situation, and the Team does not understand why this was taken into the Articles of Association. It means in principle that the owners/founders do not control their own company, and the majority of the BoD might decide to vote against the owners' requirements. Another issue, especially regarding the change of key persons in government agencies, is whether they in fact can represent the management of private organization in their official capacity. This question should be properly looked into by the NCPC BoD.
- NERD Centre sits in the BoD and this centre is clearly a competitor to NCPC in the CP market. It is therefore doubtful whether the NERD representative in the BoD will give the best strategic advice for NCPC to become the one-stop centre of excellence it wants to be. The Review Team therefore would claim that NERD Centre clearly should not have been in the BoD⁴⁵.
- The Review Team understood that NCPC will retain the present staff of the Centre in the foreseeable future, and not “rock the boat” unnecessarily at this stage to create uncertainty amongst the staff. This might be a good idea, as some of the staff could decide to leave the Centre if an uncertainty of the future was revealed. At the same time however, a different kind of mindset is required amongst the centre management and staff now that business principles will rule the operations. The Centre is no longer a “project” living on grant funding. Recruiting the right people from top to bottom to cope with this new situation might therefore be required, as to be able to sustain the new operations.
- According to the budget forecast prepared for 1st quarter of 2014 (see *Table 3.15, provided by NCPC*), the Centre needs approximately LKR 8.0 million to cover office expenses, remuneration, travel and CP programmes. There is a balance of USD 23,400 (LKR 3,065,400) coming from the Project funded by Norway, and expected earning amounts to RS. 5,000,000 from CP. According to this estimate, the Centre will have a deficit of LKR 210,970 in the 3rd month. The Centre did not reveal a clear idea to the Review Team of how to bridge this gap⁴⁶.

Amongst advantages of institutionalising NCPC could be mentioned⁴⁷:

- NCPC becomes an autonomous body so that decision making process become more independent and results-oriented.
- It allows NCPC management to “think out of the box” and give free hand to engage on demand driven services and leverage to diversify the operational portfolio with focus on income generation
- The legal status will allow tendering for jobs/assignments in the open market and operate in a

⁴⁵ The Review Team discussed this situation with the Director General of NERD Centre, who clearly confirmed that NERD Centre would not reveal any good ideas to make NCPC market leading in CP as members of the BoD.

⁴⁶ In their comments to the Draft Report, UNIDO presents some new figures for deposits and planned income for 2014, looking more optimistic than in the Team's analysis. However, as these last figures are confidential (and are thus taken out of the comments in *Appendix 13*) they cannot be used for a new analysis, so the Team have to remain with the initial calculations.

⁴⁷ The organisation of UNIDO centres around the world varies, and largely depends on the local legal conditions. NCPC is a non-profit sharing company and it protects the persons running it from personal liabilities. However it can undertake any business and make profit for its sustenance. The difference between limited liability and guarantee by limited is that it does *not* have shares. It has been a very popular organizational model in particularly among service organizations and NGOs. In most cases it is owned by the members, and they could elect a board to run it. However, in this case there is no general body consisting of members as such. It can hire people and pay for their services and enter into other kind of business according its article of association and generate profit. The company has to be audited and submitted the audited accounts to company registrar annually.

competitive environment, also financed by international donors and banks. (NCPC obviously lost a few such income opportunities earlier).

- Competition can encourage shifting the character and mindset of staff from “projects” to “business”, which is needed to face new challenges.
- Streamlining costing of services will add to ensuring sustainability.

Amongst the disadvantages, some obvious ones are:

- NCPC will end the “free/subsidised ride” and enter in to a competitive environment that they will find difficult to face without radical internal changes. This also goes for services to the governmental institutions⁴⁸.
- Losing some opportunities for attracting grant funding through “projects”.
- Running the risk of losing the demand for their services, as the NCPC services, which were provided free of charge or subsidised earlier, now must be paid for.
- To accept challenges in the new environment NCPC needs a “phase shift” in their operational culture and mindset, developing which might take time.
- Lack of experience of the staff may find it difficult to live up to the expectations of the new venture.

e) Financing of CP Investments

Not only for CP investment but also for other capital there is a problem of accessing banks for SMEs in Sri Lanka, mostly due to their inability to fulfil banks requirements. Even big enterprises that could fulfil the requirement are complaining about the price of the capital (interest rate), as it is too high for such investments. Only under special SME loan schemes such enterprises could obtain credit at a reasonable interest rate. Such schemes for general investments and CP have been introduced from time to time. There were concessionary loan schemes in the recent past funded by e.g. JICA and the Netherlands for technology improvement⁴⁹. These have been exhausted now, so there is no access to such credit. It is however a hope that similar financing mechanisms could again be introduced in the future.

As capital and fiscal incentives are important to promote CP investments the 3rd intermediate objective of the Baseline Survey has provided a number of indicators with that effect, and it was expected NCPC to develop the capacity of financial institutions to influence them in that direction. As seen, NCPC has conducted 2 programmes for financial institutions, limited to awareness raising only, and nothing came out of it. In the recent past, the Government seems to have provided fiscal incentives under the budget to encourage growth and some measures for energy savings as energy cost has risen sharply. However, in the second half year of 2013 pollution caused by water has become a very big political issue and thus the Government has taken a policy decision to e.g. relocate such high polluting industries within industrial estates.

f) Marketing of NCPC

It is doubtful that NCPC could launch a service programme on a commercial basis to sustain itself in the short run, suddenly turning from “project” to “business” during the next few months. Not without further grants to launch an effective marketing plan, that eventually will take some time. On the other hand, NCPC had enough opportunities to access the (limited) existing CP market and to further develop a CP market, if correct approaches had been adopted with a proper marketing plan and strategy in time. This has been emphasised by the donor and other during many years, but nothing has happened to prepare NCPC for the day of self-sustainability. This is indeed a significant shortcoming of the Project.

⁴⁸ Most of the CP based regulations and compliance requirements are imposed by Central Environmental Authority operating under the purview of Ministry of Environment and Renewable Energy. Performing consultancies on regulations and compliances is another area that NCPC could add into their services portfolio. However, under the new set up as a private company it won't be a free ride as they have to compete with other service providers in which case getting the consultancy cannot be assured. NCPC could be assured of getting the consultancy only if NCPC is a government organization, in which case CEA (another government organization) can contract NCPC for the task without going for competitive bidding. This had been the case before NCPC became a private company where the Ministry has been getting the NCPC services not at a fee, but free of charge. But, this option does not exist anymore as the NCPC is already a private company. Moreover, CEA has their own trained staff to carry out some of the compliance studies.

⁴⁹ E-Friends - for waste minimization, resource recovery and savings, and pollution control and abatement; Power Factor Correction Loan Scheme - enhance the power factor in industrial enterprises; Sustainable Guarantee Facility (SGF)- energy efficiency and non-conventional energy, etc.

On the other hand, after 10 years of operation, NCPC is accepted and recognised both in the public and private sectors. It has been a service provider for similar projects like SWITCH Asia, Promotion of Eco-Efficient Productivity (PEP) and Prosper Sri Lanka and also participated in many policy formulating committees and provided awareness and capacity building to public officials. However, this recognition seems to have largely rested on the Director as a person more than on the Centre. Any future market strategy of NCPC should however be based on success stories. This should be reflected in the presentation material of NCPC, starting with energy and cost savings. Successful industrialists must tell their story and study tours to successful industries must be undertaken⁵⁰. It would also in Phase II have been more effective to do this in a targeted manner for more CP needy industries, but it has not.

NCPC indeed needs focus on a few areas to be excellent and more competitive. Then only it could be more effective in their services. However on the other hand the ground situation shows that the NCPC may not be able to survive *only* with CP activities and it may have to adjust their portfolio according to the needs of the industries, still with energy in front.

3.7 Other Relevant Issues

3.7.1 Material and Equipment with NCPC

a) The NCPC library

The library of NCPC is contained in a glass-door cupboard in a small office on the first floor, where also two of the staff have their work desks, and there is no room for sitting down to read the books (see photos in *Appendix 12*). One of the national experts has the responsibility of the library. All books and journals are entered in a “Registry Book” sorted under various themes, given numbers accordingly, also marked on the books. Some of the books are received as gifts from outside and some are purchased under the Project. Additionally, the cupboard contains some project reports, but these are not in the registry. A “Library Book” shows who in the NCPC has borrowed which books, and when – signed out by the borrower. Some of the books seem to rest permanently with the national experts in their working places. No books are allowed taken out of the library by outsider, and outside visitors are registered in a “Visitors Book” (since November 2012 only 3 visitors, all students).

The establishment of the Registry Book shows the good intention of making the library operational. It is therefore somewhat sad to see that the arrangement of the library is not serving a wider purpose. Being tucked away in this small room in the first floor of the NCPC building, where visitors have to intrude on the working space of the experts, does really not make the library functional for others than the NCPC staff. As the NCPC strives to be a one-stop excellence centre for CP in the country, it is a pity that the books are not made more available to outsiders. The library should ideally have been on the ground floor, close to the reception area with good space to sit and with proper lighting for visitors to the library. (The acting librarian mentioned that they have “talked about” moving it to another room, as there has lately been space available due to employees quitting).

b) The laboratory

The laboratory of NCPC has never been in operation, but it is kept in a small kitchen in the NCPC office (see photos in *Appendix 12*). The lab equipment is second hand and was initially “saved” by the Director and moved to NCPC when the “Tannery Project” under the Ministry of Industry ended in 2004⁵¹. The equipment (pH- meter, Dissolved Oxygen (DO) meter, colorimeter, incubator, etc.) has never been calibrated and was partly said not to be working. The lab also contains glassware of different kinds, of good quality. The national expert in charge of the lab equipment (initially being a Programme Assistant) took it over in 2011, but has never got any training in the use if it and has thus never done any analysis.

⁵⁰ The Team has identified one or two successful enterprises which implemented CP and other environmental management practices and won number of awards, having the willingness and commitment to participate in propagating this concept with required ability. The Project could have used such persons to talk to other enterprises and also arrange a field day at their enterprise as an awareness creation programmes already in Phase II.

⁵¹ Norway supported the establishment of a treatment plant in this project.

c) Other equipment

The equipment/instruments used for energy measurements are stowed away in a cupboard in the NCPC office (see photo in *Appendix 12*). The NCPC has a comprehensive set of measuring instruments that can be used for CP and energy auditing fieldwork, but the instruments are stored in a disorderly manner and one cannot locate and identify the instruments without taking them out. The present status and usage of the instruments were investigated with the assistance of an engineer who is responsible for them. From *Table 3.16, Appendix 1* it can be seen that most of the instruments that are generally used for energy auditing work are in good working condition and are being regularly used. However, most of the instruments that are used for CP-related fieldwork are either not working or not being used. It was revealed that some of the equipment, including consumables associated with them, has never been used. NCPC has been outsourcing some of the laboratory services needed in CP assessments. The NCPC instruments need regular maintenance and calibration to ensure their reliability and accuracy. Investigations revealed that there was no such system in place. It appears that if present state of affairs continued, the good instruments remaining might also become unusable in the near future. Moreover, the knowledge and competence of using and handling these instruments among some of the technical staff is inadequate to use them productively and safely.

3.7.2 Document Management

A well-functioning document management system is a prerequisite for an operational CP Centre, and the Review Team is sorry to report that this is not the case in NCPC. Today, the reports produced by the Centre (quick scans, comprehensive CP assessments/audits, etc.) are stored electronically on the hard disks of the PCs at the individual expert's working desks. There is no central hard disk, or server (intranet), where all the reports and documents of common interest is stored electronically and can be accessed by all at any time. In case the experts want to share the reports with others they have to send them as attachment to emails. There are no back-ups of the PC hard disks systematically taken, so if the PC is stolen, breaks down or there is a fire, all the information is gone forever. This makes the document handling very vulnerable and is by all standards not acceptable. A simple intranet should clearly have been installed from the very beginning of the centre operation, with a proper system for document handling and storing established.

The Review Team also observed that it was not easy to retract the required information from the secretary's PC related to administrative matters (e.g. list of participants in various events, list of visiting consultants, both international and national). Also such information is stored in *one* computer and only one secretary is operating this, giving out information on request. A functional Management Information System (MIS) it therefore lacking.

3.7.3 The NCPC Office Facilities

According to their "vision", the NCPC will "*strive to be an excellent one-stop centre for all sustainable development and cleaner production related matters in the country*". Such an ambitious aim requires certain conditions to be fulfilled, amongst others making the Centre attractive to visit, of course in addition to making sure the services are state-of-the-art and in the forefront in the country. These two things go hand in hand. Unfortunately, today the Centre has a somewhat "miserable" appearance. It is located in a dead-end alley, with no proper parking facilities for cars nearby. The main entrance gate to the premises is closed so visitors have to enter via a narrow gateway and small corridor with a desk and two chairs, where the guard has to move his legs to let visitors pass. This first "sloppy" first impression of the offices unfortunately continues inside the main office building.

The office rooms in general are relatively dark, with several light bulbs not working and not being replaced. The reception area is crammed with three working desks (secretaries and clerk) in addition to a few chairs for waiting guests. There are no decorations on the walls and no posters or signboard showing that one now is in the one-stop centre of CP excellence. Visitors are normally directed to the Director's office, which is dark (only one light bulb working) and partly overloaded with reports and papers in "horizontal filing". The national experts sit in the first floor, partly behind dividing walls, which is a practical arrangement when space is limited. However, the appearance to visitors is that the offices are over-crowded and no one has really taken the initiative to create a good appearance. This is indeed sad to see, as other competitors/cooperating institutions visited by the Team during the Review, gave a much more visiting-friendly external impression. If the Centre should survive as a place of "excellence", grips must be taken to improve this situation significantly.

3.7.4 Gender Issues

The gender issues have been lightly dealt with in the reporting, although the gender ratio of the NCPC staff (around 50/50) and the event participants is mentioned in every annual report. Seemingly also, NCPC has an employment policy that enhances gender balance of the staff. Needless to say, the CP efforts with the beneficiaries are largely gender neutral, although it is noted that many of the industries have a gender imbalance, due to socio-cultural and historic reasons (e.g. the textile industry has mostly female employees in direct production, whereas mechanical industries and metal workshops have a male dominance). The RT therefore believes that NCPC is doing whatever is practically possible within the prevalent socio-cultural framework on gender issues, notably promoting female participation at various levels.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The NCPC has now been operating for 10 years, and the donor funding from Norway is coming to an end in December 2013, with funds still lasting some few months into 2014. The free/subsidised CP services of the Centre have been unanimously appreciated by the beneficiaries, and most of them can show good CP improvements and benefits as a result of NCPC awareness raising and CP audits. Although the project reporting has not been consistent in format and contents, and not really result-based with direct reference to the work plans, the observed positive impact of the Project is clear with the beneficiaries. *Effectiveness* of the Project has therefore in general been satisfactory, but the overall *efficiency* has been less satisfactory (high unit costs of activities, including too few CP auditors trained, etc., and far too high management and administration costs).

The institutionalisation of the NCPC into a more self-sustained company has unfortunately materialised far too late⁵², mostly resulting from the reluctance of the Ministry of Industry and Commerce to take the required action; turnover of centre staff; and lack of initiative from centre management. The present management has unfortunately not shown the ability to give the Centre a more “entrepreneurial” focus. This should have taken place “long time ago”, so that payment of centre services gradually could have been increased all through Phase II (not only during the last months), when still financial donor resources were available to cover the gap between income and expenditures⁵³. Relevant activities have however been started by the new BoD since May 2013, e.g. a Business Plan is now being prepared with the financial support of Germany (GiZ), to replace the Business Plan 2008-2012, and a Corporate Plan will follow suit. The Chairman of the NCPC Board clearly has a sound business view to the operations, but the Review Team believes that it takes much longer than a few months to get the Centre self-sustainable. Unless additional time-bound financing of the Centre is found, the Team fears that the operations of the Centre will stop by default during first half of 2014, as the costs (read: 19 staff salaries) are still running – as if “business as usual”. The NCPC management had however good hopes that more project funds from various sources could be available next year, amongst others from UNDP, the Ministry of environment/SEA and SWITCH Asia (“95% certain”, see comments from UNIDO in *Appendix 13*), but again such funds will be connected to a “project”, and the centre operations would then be “business as usual” – once more. A project is different from a business!

4.2 Some Recommendations

As the Project is coming to an end, and no more funding will be available from Norway, the few recommendations below mostly concerns the sustainability issues related to the NCPC operations:

- The only chance of the NCPC surviving beyond the first months of 2014, is that some funding is found to fill the gap until income from services will cover a much larger part of the operational expenditures of the Centre. The BoD should actively look for such operational funding with the Government and/or possible donors.
- The Centre must significantly, without delay, intensify its marketing efforts towards industry that will be able to pay close to market price for the CP services. This will first and foremost mean approaching

⁵² It is fair to remind that UNIDO strongly disagrees with this. The Review Team however maintains its conclusion.

⁵³ It is however fair to say that it might have been unrealistic to expect NCPC to be *fully* self-sustained in a situation where the CP market has not yet been developed substantially in Sri Lanka.

industry in and around Colombo, and larger industries in the provinces. The SMEs in the provinces, not having the financial strength, should have second priority to start with. (It is understood that the BoD plans to hire a Business Marketing Manager, and/or outsource such services to a professional marketing company, which is a good move).

- Marketing of services should focus on showing the success stories by the beneficiaries themselves, and the CP Award ceremonies should give the Centre a golden opportunity for improved (boosted) marketing.
- Marketing should have a bias towards saving of costs for the beneficiaries, which in most cases means saving energy. Then other issues (waste reduction, reduced water consumption, reduced emissions, etc.) would come as an add-on once the NCPC has got a “foot in the door”. Also the presentation material of NCPC should have the “cost saving through energy saving” as the entry point.
- NCPC must appear much more attractive to clients than today, and the offices should be refurbished (at an affordable practical level) and outfitted accordingly (preferably the Centre should move to more attractive location with more space)⁵⁴. CP posters should be displayed in the reception area, brochures regarding various related topics should be easily available for take-away, and the library should be easily accessible with space to sit for visitors.
- The staffing of the NCPC, from top to bottom, should reflect the needs to do *business*, and not to implement a *project*. A good CP manager is not necessarily a good business manager, and staff with “entrepreneurial” focus must lead the Centre.
- A simple MIS must be installed in NCPC, so reports and other documents can be available to everyone through a common service. Backup of documents must be taken and stored in a safe place (e.g. on the web).
- The NCPC services should concentrate on the core competence areas.
- The water laboratory should *not* be installed initially, as such services could be obtained from specialized laboratories.
- All instruments and equipment must be stored and arranged in an orderly manner to ensure their safety and easy access. Also all original O&M manuals of instruments must be kept in a safe and easily accessible place (e.g. in the library), and only copies of essential details should be kept with the instruments.
- Staff must be trained in proper use and handling of instruments, and a maintenance programme for the instruments should be prepared and implemented, including calibration of the instruments.

⁵⁴ It is realised that the somewhat unattractive outlook of the Centre today, might in the first place be an obstacle to access the required funds for improving the situation, which might make the future even less secure.