

Annual Project Report

[Alternatives to DDT usage for Anti-fouling Paint production in China]

[Jan 8, 2013]

Basic Project Information

Project Title: Alternatives to DDT usage for Anti-fouling Paint production in China	
UNDP Award ID	00045358
UNDP Project ID	00053562
Project Duration	November,2007-December,2013
Reporting Period	January to December 2012
Total Approved Project Budget	\$10,365,000
Participating UN agencies	
Implementing Partners/ National collaborating agencies	Foreign Economic Cooperation Office, Ministry of Environmental Protection, China
International collaborating agencies	
Cost-sharing third parties	
UNDP Contact officer	Dr. Cao Qiaohong
Project website	http://afp.china-pops.org

Executive Summary

In the year of 2012, the project has made the implementation extension to end of 2013, and made progress in term of the design of cleaner production initiatives at shipyards and the adjustment and launch of the second stage of the incentive program.

The detailed work plan by end of the project has been prepared, discussed and approved between FECO and UNDP. The annual work plan focuses on continuous implementation of the Phase II and III of incentive program in concurrence with the institutional capacity building among the authorities relating to antifouling paint products at the national and local levels. Awareness raising programs will be more targeted to local officials, consumers, and the general public. Since 2013 will be the last year of the project implementation, updated environmental monitoring and socio-economic impacts assessment will be carried out to support the terminal evaluation of the project.

1. Background

Development Context

China has 300,000 fishing ships widely distributed along its 18,000 km coastline, which consume 10,000 MT antifouling paints annually. Approximately half is DDT based paint and half organotin-based paint. About 250 MT DDT is used for production of DDT based antifouling paint per annum. As of 2002, the accumulative total of DDT used for this purpose since 1950s has reached 10,000 MT. China began to limit DDT usage in all related sectors after China acceded to Stockholm Convention in 2002. From 2002 to 2005, DDT used for antifouling paint production has seen a decrease, but still totaled a cumulative 1,000 MT.

Rapid industrial and agricultural development in the coastal areas of China in the recent past has resulted in contaminant discharge into the sea in excess of regulatory limits. This has resulted in significant deterioration in the quality of coastal marine environment as well as reduction in species of economic fish and output and has had adverse effects on income and livelihood of the local fishing community. Results from monitoring study indicates that the quantity of some toxicants found in economic fish, including DDT, in the body of main economic fish species is increasing, even beyond related international regulatory limits. The sources of some of the toxicants have been corroborated to be from their usage in coating of boats and ships. With the entry of China into WTO, her marine product exports have had some constraints in international market because of their failure to meet the relevant Quality Safety Standards.

Coastal environmental quality monitoring from year 2000 to 2005 found residues of DDT and its degradation derivatives DDD and DDE, which are also persistent and toxic, in sea water and sediments. The concentration of DDT in the sediments in some areas exceeded Class I or II of marine environment quality Standards limit. Cu in sediments was also found to exceed Marine

Environment Quality Standards. Sediment is habitat to the benthics, e.g. *Meretrix meretrix* L., *Macra quadrangularis* Deshayes, *Mytilus edulis*, and Oyster, whose quality will be directly influenced by the sediment quality. For instance, in 2004, monitoring results showed that DDT residue in seashell in coastal waters exceeded standard's limit. DDT and Cu are also detected to exceed standard in bred organisms in the coastal aquatic farms.

The excess DDT and Cu concentrations in sediment are directly related to their extensive usage in DDT and copper based antifouling paint. Use of DDT as a pesticide in agriculture was banned 20 years ago. DDT residues on land, soil, and food have fallen down to trace levels. Therefore, release of DDT from antifouling paint on fishing boats and ships can be considered a new and the main source of DDT found in marine environment.

DDT is listed in Annex B of Stockholm Convention. According to Article 3, Provision 1 of the Convention, the Parties shall limit the production and use of the chemicals listed in Annex B. The Acceptable purpose or specific exemption on production and use of DDT are limited to disease vector control and intermediate for production of Dicofol. DDT as an additive in production of antifouling paint is not considered a permitted use. According to Article 10 and 11 of the Convention, the parties shall encourage and develop activities to research, develop and monitor POPs and their alternatives as well as other potential POPs. As one of the actions in implementation of the Convention, China has listed DDT based antifouling paint into the recently issued list of products to be phased-out, annexed to The Guiding Directory for Industrial Restructure – 2005.

In cooperation with the United Nations Development Program (UNDP), a project titled Alternatives to DDT Usage in the Production of Antifouling Paint has been developed and got GEF Council approval on August, 2006, and GEF CEO Endorsement on July, 2007. The State Environmental Protection Administration of China (SEPA), through its Convention Implementation Office (CIO/SEPA), and the UNDP will be respectively the national executing agency and the international implementing agency of this four-year project from November 2007 till December, 2011.

Project Objectives and Strategy

The project goal is to substitute DDT based antifouling paint by technically feasible, economically viable, and environmentally friendly alternatives. The binding objective of this project is to eliminate 250 MT DDT per year used for production of DDT based antifouling paints by converting to technically feasible, economically viable, and environmentally friendly alternatives. The prospective objective of this project is to establish a long-term mechanism to protect the marine environment from pollution of harmful antifouling systems by supporting China to sign International Convention on the Control of Harmful Anti-fouling Systems on Ships (the IMO Convention) based on the technologies, experience and instruments obtained from phase out of DDT antifouling paint.

The implementation timeframe is 5 years. In the first two years, technically and economically feasible technologies/alternatives will be selected through open bidding and ranking process for on-ship coating experiment as well as for selection of manufacturing enterprises that possess strong technical capacity, competent management experience, and sound business development plans. Manufacturing sites will be prepared and equipment installed. Capacity will be built and policies providing enabling environment will be established. In the third and fourth years, production and promotion of the substitutes/alternatives in the market will be initiated and upscale. In the fifth year, results and experience will be summarized and compiled into reports, while at the same time the production and sales of the alternatives will be further consolidated.

2. Key Results

In the year the project progressed in design of cleaner production initiatives at shipyards and kick-off of the second stage of the incentive program. The institutional capacity building among the authorities relating to antifouling paint products at the national and local levels continued. The policy and regulatory environment to enable the elimination of DDT in the usage of antifouling paint production has been created and consolidated by the project through the promulgation and effectiveness of the Environmental Labeling standard coded HJ 2515-2012.

Project Outcomes

The project has made extension of project ending date to end of 2013.

In terms of Alternatives to DDT usage for Anti-fouling Paint production in China, the main results obtained in 2012 are: 1) Completion of the risk assessment of DDT antifouling paint production and application sites; 2) Design and kick-off of the second stage of the incentive program; and 3) The labeling and certificate program of Environmental friendly anti-fouling paint, which was developed in the project has been put into practice in the year..

Two Year Work Plan of 2012-2013 has been revised. FECO also organized annual review meeting with UNDP and three local PMOs to review the annual implementation progress and identify issues associated with the implementation delay.

Activities and Outputs

Activity 1.1 *Establish project management institutions and coordination mechanisms*

The national project management team has maintained a regular communication and reporting mechanism with UNDP through meetings and reports on AWP, QORs, PIR, and APR. Intensive travels have been carried out in order to inspect the progress of the subcontracts with or without company of project experts, UNDP, and the local PMOs depending on actual needs.

The local PMOs have fully played their local advantages in organizing, coordinating, and supervising the implementation of major programs including contaminated site investigation,

incentive program promotion, and awareness raising within their jurisdictions together with the national project management team, project consultants, and subcontractors. The local PMOs have been involved in trainings on the incentive program and awareness raising campaigns. The specific outputs of these programs will be introduced under the specific activities in the following parts.

Activity 1.2 Establish a national expert team to provide technical and consulting supports to the project implementation

The contracts with CTA and NTA have been renewed according to annual work plan.

Activity 1.3 Conduct trainings to improve managerial and technical capabilities for project management

Completed and reported in previous APRs.

Activity 1.4 Conduct study tour abroad to learn advanced experience and technologies

No action.

Activity 2.1 Establish an MIS and website for the project

The development of MIS and website are completed and reported in previous APRs, the operation and maintenance is still ongoing.

Activity 3.1 Establish or revise related regulations, standards, and rules

The study on standard draft Technical Requirement for Environmental Labeling Products has been conducted. The relevant risk assessment principles and procedures developed by this project are included in the standard to determine the level of risks of the active substances added to antifouling paints.

The environmental labeling standards are supposed to be met by top 30% products in the industry which will lead the rest 70% to catch up with the higher standard. In this logic, the environmental standards will be updated on a dynamic basis. The standard developer has collected representative samples from antifouling paint manufacturers to verify this criterion. The contents of various regulated substances have been tested in certified labs. The final values for the limits have been readjusted based on the results from the laboratory tests.

Activity 3.3 Establish and promote a voluntary certification and labeling program in the antifouling paint sector

The Environmental Labeling standard coded HJ 2515-2012 has been promulgated and made effective by the Ministry of Environmental Protection in June 2012.

Activity 3.5 Strengthen the capacity of related departments to effectively enforce the regulations, standards and action plan

Rounds of dialogues have been held with China Fishing Vessel Register under the Ministry of Agriculture and China Classification Society, two ship product certification authorities in China, to push them to incorporate the risk assessment into the certification system for antifouling paint

products. The ultimate purpose of such incorporation is to ensure the sustainable adoption and application of risk assessment criteria after the project completion, and establish a long-term mechanism for preventing harmful high-risk antifouling paint products from entering the market and causing harms to human health and the environment.

Specifically, they are required to add risk assessment into their technical requirements for antifouling paint product certification, to designate qualified laboratories for eco-toxicological tests and risk characterization, and to review all certificates already issued and certificate new products against risk assessment criteria. Terms of references for institutional capacity building have been prepared based on the consensuses from the dialogues, with the contracts expected to be signed in the first quarter of 2013.

Activity 4.1 *Test, select and acquire alternative technologies.*

To encourage more qualified alternatives entering into the market, the project will continue to receive alternatives from the industry for assessment of their efficacy and risks.

Activity 4.2 *Select demonstration enterprises and business plan improvement*

On December 17, 2012, a meeting was held among FECO, UNDP, and consultants to discuss the methodologies for the monitoring and verification of the alternatives production and consumption. The consultants were required to prepare the methodologies for the technical and financial verification in the second stage of the incentive program. Technically, the formulations and physicochemical properties of the alternatives should be verified at the points of production, distribution, and application in the middle and end of the second stage of the incentive program. Financially, all sorts of transactional invoices and evidences should be verified to reach a final number of alternatives produced and distributed. One of the striking differences of Stage II incentive program is the design of promotional activities that intend to drive demands of alternatives and benefit end consumers (shipyards and ship owners). Enterprises are encouraged to use a combination of promotional activities such as discount, free gifts, and coupons.

The whole texts of the incentive program were published through the websites of FECO, China Coating Industrial Association, and China Environment Daily. Nine antifouling paint manufacturers submitted their expressions of interests with a package of supporting materials showing qualifications and eligibility. On December 28, 2012, an information session was held targeting the 8 manufactures to impart the incentive program and the verification requirements before they prepare their business plans. The enterprises were required to submit their business plans before January 8, 2013. It is expected that the business plans will be formally approved by FECO after contract negotiation at the end of January.

Activity 4.3 *Produce, distribute and promote alternatives*

Based on the result of the first round incentive program, relevant experiences and lessons learnt have been collected and reviewed.

Invited by China Coating Industrial Association, the national technical advisor of the project made a presentation to introduce the incentive program at Annual Conference of the Sub-Association

on Anti-Corrosive Coatings (2012) under the China Coating Industrial Association on November 15, 2012. The enterprise members present at the meeting showed strong interests in participating in the incentive program.

The second stage of incentive program has been initiated. More than 9 enterprises attended the training on detail rules.

Activity 4.4 Conduct environmental sound management of DDT at contaminated sites

The risk assessment on typical contaminated sites of DDT antifouling paint using shipyards and DDT antifouling paint manufacturing factories was completed with practical recommendations made for improving the environmental management of these sites. Following the risk assessment on contaminated sites of shipyards, the PMOs in the South Sea Area and the Huang-Bo Sea Area have prepared proposals for demonstrating and promoting cleaner production in shipyards. A number of shipyards will be selected for performing best docking practices, based on which guidelines for shipyard cleaner production will be developed. The local governments will promote the adoption of the guidelines through trainings and cleaner production audit.

Activity 5.1 Prepare publicity materials

The publicity materials has been updated by incorporating the results from the environmental monitoring and survey of DDT pollution at selected production sites (factories), application sites (shipyards), and affected areas (coastal areas and open sea) for awareness raising and education.

Activity 5.2 Mobilize NGOs to conduct community based environmental education and awareness rising

A training workshop was held at Weihai City targeting the officials from the environmental EPBs of the six coastal cities in Shandong Province. The national technical advisor of the project has made intensive presentations from five aspects: (1) the characteristics and hazards of DDT, (2) the pollution status and risks of DDT released from the production and consumption of DDT containing antifouling paints to the environment, (3) the selection and promotion of efficacious and low-risk antifouling paints, (4) the work plan for the remained project activities aiming to build the sustainability of the project after its completion by the end of 2013, and (5) the recommendations to the local EPBs for handling the risks of DDT to human health and the environment.

The meeting participants appreciated the opportunity to learn the successful experience from the project in mitigating the pollution and risks from the production and consumption of DDT containing paints, and considered that the project has created a good model for phasing out and substituting persistent, bio-accumulative, and toxic substances similar to DDT or their preparations in products in the future. It is planned under the project that such training workshops will be organized targeting the authorities of other coastal cities along the coastal line of China for them to incorporate the good experience into their routine work for POPs pollution control.

Activity 6.1 Conduct meetings for project inception, review progress and project results

On December 27, 2012, FECO organized annual review meeting among UNDP and three local PMOs to review the annual implementation progress and identify issues associated with the implementation delay. The annual work plan before the project completion has been re-arranged, discussed and approved between FECO and UNDP. The annual work plan for 2013 focuses on the continuous launch of Phase II and Phase III incentive schemes in concurrence with the institutional capacity building among the authorities relating to antifouling paint products at the national and local levels. Awareness raising programs will be more targeted to local officials, consumers, and the general public. Since 2013 will be the last year of the project implementation, updated environmental monitoring and socio-economic survey will be carried out to support the terminal evaluation of the project.

Activity 6.2 Launch field investigations and inspections to monitor and evaluate progress of project implementation

No action.

Activity 6.3 Prepare progress reports to monitor project progress and performance

The project team has prepared and submitted to UNDP the annual project review (2012), the project implementation review (2012), and the annual work plan (2013), 4 quarterly operational reports according to the M&E requirements of UNDP and GEF during this reporting period.

Activity 6.4 Conduct annual project audit

The national audit team has taken routine audit over the project.

Sustainability

The sustainability of the project has been achieved through the following measures:

- The project has created a policy and regulatory framework to enable the elimination of use of DDT and other harmful substances in the usage for antifouling paint production, including product standards, testing method, risk assessment method, environmental labeling standard, ban, and other forms of administrative orders.
- The industrialized production and distribution of alternatives by enterprises have taken a significant and increasing share of the market. Normally, enterprises have the motivation to continue the supply of such products to the market while keeping the price going down.
- There is strengthened awareness among the end users and the general public about the harms and benefits in choosing antifouling solutions. Consequently, this will force the suppliers to phase out polluting products and turn to the production of environmentally friendly ones.

The sustainability of the project impact will be continuously strengthened and consolidated by the implementation of the second and third stage of the incentive program.

MDG Targets

The project is facilitating the realization of the MDGs:

- Target 7.A: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.
- Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss. Long-term accumulative contamination of soil and water during production and use of DDT and DDT based antifouling paint will also cause damages to the sensitive species, and even trigger species extinction. The cost of species extinction and rehabilitation of damaged ecosystem will be too huge to calculate.

Partnership Effectiveness

The project has built up an excellent national and local institutional infrastructure, with strengthened capacity of China Classification Society and fishing vessel register for phasing out harmful antifouling systems, and the environmental protection sectors for establishing risk management of antifouling biocides. The project has achieved the anticipated outputs as reflected in the project design for this year, with exceedingly promising results from three demonstration sea area on propaganda and training for antifouling paint phase-out.

Cross-cutting Issues

Economic loss of aquatic product export will be incurred by the excessive DDT contents. The increase rate of aquatic product export in 2005 was reduced by 14% as compared with that in 2004, mainly due to the over residual of pesticides. While it is hard to quantitatively determine the impacts of DDT usage in antifouling paint to the aquatic product quality, it should be a significant factor due to direct release of DDT into coastal waters and accumulation in aquatic products.

The ultimate substitution of DDT usage in the production of antifouling paint depends on the private sector, including the suppliers and demanders of the antifouling products. From the very start, the project spends great efforts to mobilize the international manufacturers and domestic manufacturers to research, develop, and demonstrate their alternatives to DDT under the support of this project. International companies showed reluctance due to the low profit margin by manufacturing and selling short-life antifouling paints to fishing ships. However, the project has successfully attracted the domestic enterprises and research institutions. They are also committed to produce and sell the tested qualified alternatives under the incentive program. Awareness raising activities have been and will continuously be launched among the end users including the shipyards and individual ship owners to pull the demand of alternatives.

3. Project Management and Oversight

In 2012, the project implementing period has been extended to end of 2013. Some of activities on promotion of alternatives and capacity building of related authorities have been strengthened or adjusted upon the results of previous activities and for sustaining the project impacts.

The project will be operationally closed by end of 2013 and workload in the year is much heavy. UNDP and FECO shall keep closer communication for ensuring the project activities as planned can be done efficiently and effectively.

Implementation status

The project has come into the last year of implementation. The project implementation plan to end of the project has been updated.

Monitoring and Evaluation

Mid-term evaluation conducted from June to Sept 2010.

And the annual review meeting for 2012 was held on 27th 2012 in Beijing. Some activities have been re-arranged considering some delay and modification occurred by now.

Human Resource Management

The successful project implementation depends on the availability of a wide range of expertise from R&D of antifouling technologies, antifouling paint production and marketing, chemicals regulations and enforcement, and public relations. UNDP and FECO's platforms and networks of expert human resources have provided the project with sufficient choices of qualified experts in developing and delivering the knowledge and know-how to the industries, regulators, and the public.

There happened staff changes in the national PMO in the reporting. Currently Ms. Qiao yanling is assigned as the focal point of the project at FECO/MEP.

Risk management

The major risks of the project lied in the failure in successfully selecting out a good number of alternatives for promotion. These risks have been overcome by the effective mobilization and involvement of the industry into the test platforms provided by the project.

Inter-Agency Coordination and Delivering as One

N/A.

Communication and advocacy

The project has implemented a holistic strategy for the communication and advocacy. In the first half cycle of the project, the emphasis has been put on the dissemination of information regarding the harms of DDT and methods in researching and developing alternatives. In the second stage, the emphasis will be shifted to the choices of alternatives and benefits from using alternatives. The national project management team has adopted Internet, newspaper, and

information sessions for the dissemination of information regarding the incentive program so that the enterprises, distributors, and the general public can be highly mobilized in the participation in the incentive program.

4. Financial Management

	Source of Fund	Budget	Expenditure
Expenditure Vs. Approved project budget by source of funding	UNDP	\$ 10,365,000	\$ 3,689,562.53
	Government Cost Sharing		
	Third Party Cost-sharing		
	Other (please specify)		
	Total		\$ 10,365,000

Output	Activities	Source of Funding	Budget Description	Annual Budget (USD)	Annual Expenditure (USD) 1USD=6.22CNY	Note
Output/Outcome 1 Establish Project Management Institutions and Build Operational Capacity	Activity 1.1	GEF/FECO	71300	0.00	2,315.11	
		GEF/FECO	71400	0.00	17,363.34	
		GEF/FECO	71600	0.00	3,855.79	
		GEF/FECO	72100	0.00	37,722.91	
		GEF/FECO	74500	0.00	4,075.00	
	Activity 1.2	GEF/FECO	71300	28,068.00	33,445.53	
Output/Outcome 2 Establish MIS and Website	Activity 2.2	GEF/FECO	72100	15,000.00	0.00	
Output/Outcome 3 Establish or Revise Regulations, Standards, and Action Plan	Activity 3.1	GEF/FECO	71300	5,409.00	0.00	
	Activity 3.2	GEF/FECO	71300	12,660.00	0.00	
	Activity 3.3	GEF/FECO	72100	0.00	26,076.93	
	Activity 3.5	GEF/FECO	72100	10,000.00	18,300.96	
Output/Outcome 4 Select alternatives and promote conversion	Activity 4.3	GEF/FECO	72100	438,690.00	431,768.02	
		GEF/FECO	75700	15,000.00	0.00	
	Activity 4.4	GEF/FECO	71300	0.00	401.93	
		GEF/FECO	72100	53,302.00	5,787.78	

Output/Outcome 5 Promote Awareness	Activity 5.1	GEF/FECO	71300	8,400.00	0.00		
		GEF/FECO	72100	45,000.00	0.00		
Output/Outcome 6 Monitoring and evaluation	Activity 6.1	GEF/FECO	72100	0.00	9,938.42		
	Activity 6.2	GEF/FECO	72400	364.00	0.00		
		GEF/FECO	71300	30,000.00	0.00		
		GEF/FECO	72500	2,028.00	0.00		
		GEF/FECO	71600	3,807.00	0.00		
		GEF/FECO	71400	1,762.00	0.00		
	GEF/FECO	75700	5,319.00	0.00			
Activity 6.4	GEF/FECO	72100	8,000.00	0.00			
				Total	682,809.00	591,051.72	86.56%

5. Management recommendations

5.1 List recommendation here.

Some of project activities have been delayed, and the stricter track and supervision will be needed both in FECO and UNDP. UNDP and FECO/MEP need to keep closer communication for ensuring the planned activities to be done smoothly. The quarterly review meetings shall be organized for the purpose as well.

5.2 List recommendation here.

The relevant governmental agencies shall be more mobilized to substantially participate in the project activities, especially for engaging the private stakeholders in the alternatives production, distribution and consumption.

5.3 List recommendation here.

To finish the activities and accordingly the budget to end of the project in 2013 is very challengeable, more human resource is needed to guarantee the fulfillment of the project tasks in the year.

6. Conclusion

Overall, the project has realized the transition from the selection of alternatives among R&D community to the promotion of alternatives among end users during this reporting period. Risks in organizing the intensive, large-scale but well controlled efficacy tests have been overcome successfully by taking the advantages of the effective infrastructure for horizontal and vertical coordination. With the incentive program well designed, agreed by stakeholders, and put in place, the project is moving right on the track to achieve the DDT phase-out and substitution goals in the antifouling paint sector.

The implementation in 2013 was delayed for some reasons and the project implementation is extended to end of 2013 and the activities planned in 2013 is very intensive and important for achieve the overall goal of project. So FECO/MEP and UNDP need to keep closer communication for all possible efforts to ensure the project can be implemented efficiently and effectively as planned.

7. Annexe/s

N/A