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Document of
The World Bank

Report No: ICR00003554

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-48730 TF-58040)

ON A

LOAN
IN THE AMOUNT OF EURO 50 MILLION
(US$68.1 MILLION EQUIVALENT)

AND A

GLOBAL ENVIRONMENTAL FACILITY GRANT
IN THE AMOUNT OF US$5.5 MILLION

TO THE

GOVERNMENT OF ROMANIA

FOR AN

INTEGRATED NUTRIENT POLLUTION CONTROL PROJECT

January 30, 2016

Global Practice for Environment and Natural Resources
Central and Eastern Europe (ECCU5)
Europe and Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective August 31, 2007)

EUR 1	=	RON 3.39
2.62 RON	=	US$1
US$1.49	=	SDR 1
US$ 1.36	=	EUR 1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ANAR	National Administration for Romanian Waters
APCP	Agricultural Pollution Control Project
BSEP	Black Sea Environment Program
CGAP	Code of Good Agricultural Practices
CPS	Country Partnership Strategy
EMP	Environmental Management Plan
EU	European Union
EPA	Environmental Protection Agency
GEF	Global Environment Facility
IBRD	International Bank for Reconstruction and Development
IFR	interim financial report
INPCP	Integrated Nutrient Pollution Control
ISR	Implementation Status Report
IRR	Internal Rate of Return
MARD	Ministry of Agriculture and Rural Development
MEF	Ministry of Economy and Finance
MESD	Ministry of Environment and Sustainable Development
MEWF	Ministry of Environment, Waters and Forests
MPH	Ministry of Public Health
MTR	Mid-Term Review
ND	Nitrates Directive
NGO	Non-governmental organization
NPV	Net Present Value
NVZ	Nitrate Vulnerable Zone
PAD	Project Appraisal Document
PDO	Project Development Objective
PMU	Project Management Unit

RON	Romanian Lei
SIL	Specific Investment Loan
TDS	Training & Demonstration Site

Senior Global Practice Director:	Paula Caballero
Practice Manager:	Kulsum Ahmed
Project Team Leader:	Cesar Niculescu
ICR Team Leader:	Gillian Cerbu

ROMANIA
Integrated Nutrient Pollution Control Project

CONTENTS

A. Basic Information			
Country:	Romania	Project Name:	Romania Integrated Nutrient Pollution Control Project
Project ID:	P093775,P099528	L/C/TF Number(s):	IBRD-48730,TF-58040
ICR Date:	07/13/2015	ICR Type:	Core ICR
Lending Instrument:	SIL,SIL	Borrower:	ROMANIA
Original Total Commitment:	USD 68.10M,USD 5.50M	Disbursed Amount:	USD 46.21M,USD 3.23M
Environmental Category: B,B		**Focal Area**: I	
Implementing Agencies: PMU-Ministry of Environment, Waters and Forests			
Cofinanciers and Other External Partners:			

B. Key Dates

Romania Integrated Nutrient Pollution Control Project - P093775

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	07/05/2005	Effectiveness:	12/08/2008	12/08/2008
Appraisal:	01/19/2007	Restructuring(s):		07/13/2012
				08/05/2013
				09/07/2015
Approval:	10/30/2007	Mid-term Review:	03/29/2011	03/31/2011
		Closing:	12/31/2013	05/31/2017

GEF Romania Integrated Nutrient Pollution Control Project - P099528

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	07/05/2005	Effectiveness:	11/21/2008	12/08/2008
Appraisal:	01/19/2007	Restructuring(s):		07/13/2012
				08/05/2013
				09/07/2015
Approval:	10/30/2007	Mid-term Review:	03/21/2011	03/31/2011
		Closing:	12/31/2013	05/31/2017

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes	Moderately Satisfactory
GEO Outcomes	Moderately Satisfactory
Risk to Development Outcome	Moderate
Risk to GEO Outcome	Moderate
Bank Performance	Satisfactory
Borrower Performance	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	**Ratings**	**Borrower**	**Ratings**
Quality at Entry	Satisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance	Satisfactory	Overall Borrower Performance	Moderately Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Romania Integrated Nutrient Pollution Control Project - P093775			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating:**
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA)	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA)	None
DO rating before Closing/Inactive status	Moderately Satisfactory		

GEF Romania Integrated Nutrient Pollution Control Project - P099528			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating:**
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA)	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA)	None
GEO rating before Closing/Inactive Status	Moderately Satisfactory		

D. Sector and Theme Codes		
Romania Integrated Nutrient Pollution Control Project - P093775		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
General agriculture, fishing and forestry sector	18	18
General public administration sector	20	20
Sanitation	13	15
Solid waste management	27	27
Wastewater Treatment and Disposal	22	20
Theme Code (as % of total Bank financing)		
Environmental policies and institutions	25	25
Land administration and management	13	13
Pollution management and environmental health	25	25
Rural services and infrastructure	13	15
Water resource management	24	22

GEF Romania Integrated Nutrient Pollution Control Project - P099528		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
General agriculture, fishing and forestry sector	10	10
General public administration sector	60	60
Sanitation	5	5
Solid waste management	15	15
Wastewater Treatment and Disposal	10	10
Theme Code (as % of total Bank financing)		
Environmental policies and institutions	25	25
Land administration and management	13	13
Pollution management and environmental health	24	24
Rural services and infrastructure	13	15
Water resource management	25	23

E. Bank Staff		
Romania Integrated Nutrient Pollution Control Project - P093775		
Positions	**At ICR**	**At Approval**
Vice President:	Cyril E Muller	Shigeo Katsu
Country Director:	Jean-Francois Marteau	Anand K. Seth
Practice Manager/Manager:	Kulsum Ahmed	Juergen Voegele
Project Team Leader:	Cesar Niculescu	Karin Shepardson
ICR Team Leader:	Gillian Cerbu	
ICR Primary Authors:	Gillian Cerbu; Cosmin Buteica	

GEF Romania Integrated Nutrient Pollution Control Project - P099528		
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Vice President:	Cyril E Muller	Shigeo Katsu
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ICR Primary Authors:	Gillian Cerbu; Cosmin Buteica	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)
To support the Government of Romania to meet the EU Nitrates Directive requirements by (a) reducing nutrient discharges to water bodies, (b) promoting behavioral change at the commune level, and (c) strengthening institutional and regulatory capacity.

Revised Project Development Objectives (as approved by original approving authority)
N/A

Global Environment Objectives (from Project Appraisal Document)
To reduce over the long term, the discharge of nutrients (nitrogen and phosphorous) into water bodies leading to the Danube and Black Sea through integrated land and water management.

Revised Global Environment Objectives (as approved by original approving authority)
N/A

(a) PDO Indicator(s)

Indicator	Baseline Value (PAD - adjusted)	Original Target Values (from approval documents) 6/14/2013	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1:	**At least 80% of targeted NVZs show 10% reduction in nutrient load discharge to water bodies**			
(PAD – original)				
Value (quantitative or qualitative)	**0**	**80%**		**61.50%**
Date achieved:	**2/16/2007**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	As of September 30, 2015, the target has been 76.88% achieved. Due to the Project's investments being slow to come online (as a result of procurement delays), there have been delays experienced in reducing the nutrient load discharge to water bodies. As construction of the remaining communal platforms have been contracted out and anticipated to be completed before the new project end-date, it is very likely that the original target value will be met.			
Indicator 2:	**Percentage of the population in the project area adopting preventative and remedial measures to reduce nutrient discharges (index measures various rural waste management and good agricultural practices)**			
(PAD – original)				
Value (quantitative or qualitative)	**<2%**	**50%**		**52.60%**
Date achieved:	**2/16/2007**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	As of June 14, 2013, the original target value of 50% was met; as of September 30, 2015, the target was surpassed. The increase in target population adoption of preventative and remedial measures to reduce nutrient discharges resulted from a combination of investments at the commune level, and individual farmstead level in combination with a successful communication and outreach strategy at the national, local and individual farm level.			
Indicator 3:	**Improved inter-governmental coordination and capacity to assess, monitor and report on progress with implementation of the EU Nitrates Directive**			
(PAD – original)				
Value (quantitative or qualitative)	**Limited to no capacity**	**Improvements acknowledged**		**Improvements acknowledged – Good capacity of the governmental institutions in the assessment, monitoring and reporting regarding the implementation of the EU Nitrates Directive.**
Date achieved:	**2/1/2008**	**6/14/2013**		**9/30/2015**

Comments (incl. % achievement)	This target has been fully achieved; improvements were acknowledged. As a result of technical assistance provided by the project to various government agencies, the Inter-ministerial Committee for the Implementation of the Action Plan for the Protection of Waters against Pollution caused by Nitrates from Agricultural Sources (IC) is fully functional and meets on regular basis. In addition, a Working Group has been jointly set up by the MECC and MARD to support the PMU with the coordination and implementation of a Demonstrative Program of good agricultural practices, including nutrients management.			
Indicator 4:	**Favorable EU assessment of Romania's progress towards meeting EU Nitrates Directive**			
(PAD – original)				
Value (quantitative or qualitative)	**n.a.**	**Progress acknowledged**		**Progress acknowledged through EU comments on reports.**
Date achieved:	**2/1/2008**	**6/14/2013**		**09/30/2015**
Comments (incl. % achievement)	This target has been fully achieved at the time of this assessment. The reports prepared by Romania on the Nitrate Directive implementation for the reporting periods 2004-2007 and 2008-2011 were submitted on time and were accepted by the DG Environment of the EU Commission. In 2008, to meet the EU Nitrates Directive, an initial 251 localities were designated as "nitrate vulnerable zones" (NVZs) using (a) data for sources of nitrate pollution (primarily livestock waste and fertilizers), and (b) soil characteristics that determine the movement of nitrates to water bodies. The Project made progress on Nitrate Directive compliance in these areas originally designated as NVZs, as reported to and assessed by the EU. However, in 2013 Romania agreed to apply Action Programs for the protection of waters against pollution with nitrates originating from agriculture, on their entire territory. [1]			
Indicator 5:	**Nutrient load reduction (Nitrogen (N)) achieved under the project (Tons/year)**			
Value (quantitative or qualitative)	**0**	**300.00**		**255.50**
Date achieved:	**2/1/2008**	**6/14/2013**		**09/30/2015**
Comments (incl. % achievement)	This indicator was added on October 31, 2012 (ISR). This target has been 85.17% achieved. The nutrient load reduction achieved (in tons/year) was estimated based on the data collected at Second Mid-Term Survey completed in December 2014 and the communes' reports regarding the use of the sewage systems. As a result of the remaining planned investments coming on line over the next 6 months, this target will likely be achieved before the revised project end date.			
Indicator 6:	**Land users adopting sustainable land management practices as a result of the project**			

[1] The Water Framework Directive was adopted and implemented on the entire territory of Romania starting with 2004 when the Water Law 107/1996 was amended to fully incorporate the provisions of EU Water Framework Directive. According with the Nitrate Directive, the member states must implement, in areas identified as Nitrate Vulnerable Zones, Action Programs for water protection against pollution with nitrates from agriculture. Because almost the entire territory of Romania lies in the Danube Basin, although the designated NVZs cover only 56% of agricultural land, Romania choose to apply Action Programs for water protection against pollution with nitrates from agriculture to their entire territory.

Value (quantitative or qualitative)	**0**	**21000**		**17400**
Date achieved:	**2/1/2008**	**6/14/2013**		**09/30/2015**
Comments (incl. % achievement)	This indicator was added on October 31, 2012 (ISR). This target has been 82.86% achieved. This figure was estimated based on the completed investments for manure management. As a result of the remaining planned investments coming on line over the next 6 months, and residents in and around these investments correspondingly utilizing the new manure management infrastructure once ready, this target will likely be achieved before the revised project end date.			

(b) GEO Indicator(s)

Indicator	Baseline Value 02/16/2007	Original Target Values (from approval documents) 6/14/2013	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1: PAD original	**Increased awareness of the linkages between local actions and impact on Black Sea and Danube River water quality**			
Value (quantitative or qualitative)	**16%**	**30%**		**21.5%**
Date achieved:	**2/1/2008**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	This target has been 71.67% achieved. Based on results provided by the Second Mid-Term Social Survey completed in December 2014, and by the average index for Treatment Group (11 TDS) and Control Group 3 (10 out of 58 NVZs communes receiving project financed investments). The values of awareness index of the polluting effects on Danube River and Black Sea do not differ significantly in 2014 as compared with 2012. As a result of the remaining planned investments coming on line and being used by additional communes in NVZs over the next 6 months, rural populations in the targeted investment areas will be able to access this infrastructure for improved manure management. Once new habits in improved manure management will have been formed, and nutrient loading in waterways avoided, local residents will be able to see firsthand how their actions impact the health of local waterways and water quality resulting in a high likelihoods that his target will be achieved before the revised project end date.			

(c) Intermediate Outcome Indicator(s)

Indicator	Baseline Value 02/16/2007	Original Target Values (from approval documents) 6/14/2013	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years

Component 1:	**Commune-based Investments**			
Indicator 1:	**A higher share of programmed EU rural development grant resources linked with nutrient control measures in NVZs than in non-NVZs & over baseline.**			
Value (quantitative or qualitative)	**-**	**>1**		**Rural Development Program still in starting up mode and coordination actions planned over next months.**
Date achieved:	**2/16/2007**	**6/14/2013**		**10/30/2010**
Comments (incl. % achievement)	This indicator was not dropped; however it was not reported on formally after October 30, 2010. To help communities access EU funding, an inventory of NVZ localities was made, and 96 applications for funding (by the project) for feasibility studies for wastewater treatment facilities were received, of which 19 were already completed. As the sub-component under Component 1: support for feasibility studies was dropped, this correspondent indicator was no longer reported upon.			
Indicator 2:	**Cost of measures for reduced discharge for 1 Kg of N (000 RON)**			
Value (quantitative or qualitative)	**0**	**<40 USD on average**		**Value not available**
Date achieved:	**12/8/2008**	**6/14/2013**		**N/A**
Comments (incl. % achievement)	This indicator was not dropped; however it was not reported upon by Project. However, the financial analysis indicated that costs were 33.6 USD/kg of N.			
1a.	**Rural waste management**			
Indicator 3:	**Percentage of households with livestock adopting improved waste management practices**			
Value (quantitative or qualitative)	**7.50%**	**45%**		**7.50%**
Date achieved:	**2/16/2007**	**6/14/2013**		**11/30/2010**
Comments (incl. % achievement)	This indicator was not dropped; however it was not reported upon formally after November 30, 2010. The baseline figure was updated from 4% to 7.5% based on the baseline survey conducted on February 26, 2009. However, similar information is reported upon under indicator #15 and in Project progress reports.			
1b.	**Afforestation & Pasture Rehabilitation**			
Indicator 4:	**Percentage of targeted communes with tree planting and the pastures rehabilitation in the agreed project plans implemented.**			
Value (quantitative or qualitative)	**0**	**75%**		**Value not available**
Date achieved:	**12/8/2008**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	This indicator was not dropped; however it was not reported upon by Project (ISR M&E).			
1c.	**Promotion of the Code of Good Agricultural Practices**			
Indicator 5:	**Percentage of cropped area in the project commune under relevant nutrient reduction measures.**			

Value (quantitative or qualitative)	**<2%**	**30%**	**50%**	**38%**
Date achieved:	**2/16/2007**	**6/14/2013**	**5/31/2017**	**9/30/2015**
Comments (incl. % achievement)	Initial target 127% achieved; target increased after Project Restructuring (8/2015) based on the remaining planned 21 platforms for manure management coming online and should be achieved before the project's end.			
1d.	**Wastewater**			
Indicator 6:	**Percentage of households in targeted villages connected to the sewage system with appropriate treatment.**			
Value (quantitative or qualitative)	**0**	**30%**		**27.3%**
Date achieved:	**12/8/2008**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	This target has been 91% achieved. The following villages are connected to sewerage: Gratia: 27.7% (332 of 1200 households). Paulesti: 25.8% (205 out of 872 households + 20 out of 20 juridical persons - serving a total of 1220 persons). Salacea: 15.8% Public institutions + 40 households - serving about 480 persons. In addition, 776 connections between the sewerage collector and the properties limits were constructed by the commune with their own funds. Strejnicu: 40% - 245 households, 5 institutions (school, kindergarten, mayoralty buildings, medical aid point - about 900 persons), 10 companies, 2 blocks of flats. Thus far under the project, 8 communes were selected and 9 sewerage systems (covering 16 villages) have been contracted and 7 sewerage systems completed, covering 12 villages This target will likely be met by project end, as the remaining two sewerage systems in Bontida commune are being completed.			
Component 2:	**Strengthened institutional and regulatory capacity for implementing the EU Nitrates Directive**			
2a.	**Policy and regulatory support**			
Indicator 7:	**Relevant legislation updated and Ministerial Orders issued clearly defining responsibilities. EU reporting process tested and using inputs of multiple institutions.**			
Value (quantitative or qualitative)	**Legislative and reporting framework un-tested**	**EU acceptance of Romania report.**		**Completed**
Date achieved:	**12/8/2008**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	Target achieved (100%). As of June 14, 2013, the EU accepted Romania's report on progress towards the EU Nitrates Directive. Romania has been in the process of implementing the "Code of Good Agricultural Practices for the protection of waters against pollution caused by nitrates from agricultural sources" and regulatory gaps have been identified and addressed.			
2b.	**Water Basin Authority and other institutions/agencies**			
Indicator 8:	**Unified set of monitoring guidelines and standards for soil and water adopted, and monitoring program implemented.**			

Value (quantitative or qualitative)	**Separated monitoring frameworks for water and soil**	**Satisfactory implementation to meet government and EU requirements**		**Completed.**
Date achieved:	**12/8/2008**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	Target achieved (100%). As of June 14, 2013, Romania successfully adopted and satisfactorily implemented a unified set of monitoring guidelines and standards for soil and water, and implemented the correspondent monitoring program accordingly. Prior to the Project, ANAR had been monitoring groundwater through a network of approximately 1400 piezometers; the Project supported the extension of the network with 63 new piezometers.			
2c.	**Training at national, basin and county levels**			
Indicator 9:	**Working groups at Water Basin and County levels functioning effectively and all staff working on the Nitrates Directive fully operational.**			
Value (quantitative or qualitative)	**Ad-hoc implementation of working groups.**	**WGs effective to support EU reporting and to coordinate actions of other agencies.**		**WGs are functioning effectively.**
Date achieved:	**12/8/2008**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	Target achieved (100%). As of June 14, 2013, the WGs are functioning effectively with 401 specialists participating in the WGs from MoEF, MARD, ANAR (other than laboratory staff), EPA, Environmental Guard, and OJSPA trained for Nitrate Directive implementation at basin and country levels.			
Component 3:	**Public Awareness and Replication Strategy**			
Indicator 10:	**Percentage increase of rural population in project and non-project areas aware of and initiating / implementing actions related to nutrient reduction.**			
Value (quantitative or qualitative)	**TBD**	**TBD**		**Value not available**
Date achieved:	**12/8/2008**			
Comments (incl. % achievement)				
	This indicator was not dropped; however it was not reported upon by the Project (through ISR M&E). However, (i) awareness of rural populations and (ii) rural population initiating/implementing actions related to nutrient reduction inside and outside project areas was measured as part of the surveys conducted under the First and Second Mid Term Evaluation.			
Component 4:	**Project Management Unit**			
Indicator 11:	**PMU fully functional and operating effectively**			
	Continued strong support from Inter-ministerial Committee for project			

Value (quantitative or qualitative)	**Satisfactory**	**Satisfactory**		**No formal reporting**
Date achieved:	**12/8/2008**			
Comments (incl. % achievement)	This indicator was not dropped; however it was not reported upon by the Project formally (through ISR M&E). Effectiveness of PMU and steering committee was monitored through supervision.			
Indicator 12	**Number of ANAR technical staff trained (cumulative)**			
Value (quantitative or qualitative)	**0**	**336**		**302**
Date achieved:	**2/26/2009**	**6/14/2013**		**9/30/2015**
Comments (incl. % achievement)	Target 90% achieved. A total of 302 ANAR specialists were trained to use the equipment provided by the project and in sampling and testing methods related to water quality monitoring. This target may not be met before the current closing date of May 31, 2017.			
Indicator 13	**Number of communal platforms completed (cumulative)**			
Value (quantitative or qualitative)	**0**	**86**	**75**	**63**
Date achieved:	**2/26/2009**	**9/30/2013**	**5/31/2017**	**9/30/2015**
Comments (incl. % achievement)	Target 84% achieved. The target has a high likelihood of being fully achieved by the Project's end date of May 31, 2017 as the remaining planned platforms for manure management will come online. 63 platforms are fully complete in 58 communes, with several others at different stages of completion (procurement and construction). During the July 13, 2012 level 2 restructuring the number of communal waste platforms were reduced from 86 to 75 (Aide Memoire March 31, 2011 – AM May 28, 2015) due to factors impacting tendering: lack of appropriate sites, and difficulties obtaining construction permits. Following (May 31, 2014), savings of approximately 7 million euro at contract signing were accrued due to strong competition in the bidding process for civil works for the 39 already constructed manure management platforms and 9 sanitation investments. Given the Project implementation extension, these savings were earmarked for the establishment of additional systems for manure collection, management and use.			
Indicator 14	**Number of project communes implementing at least one of the following nutrient reduction measures: communal platforms, pasture rehabilitation, tree planting (cumulative)**			
Value (quantitative or qualitative)	**0**	**86**	**69**	**92**
Date achieved:		**1/31/2013**	**5/31/2017**	**9/30/2015**
Comments (incl. % achievement)	Target 107% achieved. Presently, there are 92 NVZ communes implementing the different practices and measures for nutrients reduction: 1. 29 NVZ communes implementing at least manure management practices (communal platforms); 2. 11 NVZ communes implementing manure management practices (communal platforms), pasture rehabilitation and tree planting; 3. 18 NVZ communes implementing manure management practices (communal platforms) and tree planting; 4. 34 NVZ communes implementing tree planting.			

Indicator 15	Land area where sustainable land mgt. practices were adopted as a result of project (Ha, Core)			
Value (quantitative or qualitative)	**0**	**18000.00**		**15262.00**
Date achieved:	**2/1/2008**	**5/31/2017**		**9/30/2015**
Comments (incl. % achievement)	Indicator added on October 31, 2012. Target 85% achieved. There are 58 communes implementing sustainable land management practices based on investments in communal platforms for manure management (15.080 ha); 34 communes are implementing only tree planting as nutrient reduction measure (182 ha). With the additional investments planned to come online, the target will likely be met before the project's end date of May 31, 2017			

G. Ratings of Project Performance in ISRs

-						
No.	**Date ISR Archived**	**DO**	**GEO**	**IP**	**Actual Disbursements (USD millions)**	
					Project 1	**Project 2**
1	03/07/2008	S	S	S	0.00	0.00
2	11/09/2008	S	S	S	0.00	0.00
3	04/12/2009	S	S	S	0.00	0.48
4	12/04/2009	MS	MS	MU	1.35	0.90
5	04/29/2010	MS	MS	MS	2.00	1.71
6	03/27/2011	MS	MS	MU	4.25	2.51
7	03/25/2012	MS	MS	MS	9.82	2.64
8	12/26/2012	MS	MS	S	23.82	2.71
9	06/18/2013	MU	MU	MS	26.71	2.79
10	10/29/2013	MS	MS	MS	31.02	2.90
11	06/23/2014	MS	MS	MS	37.35	3.07
12	12/18/2014	MS	MS	MS	40.12	3.14
13	06/23/2015	MU	MS	MS	45.94	3.15
14	09/30/2015	MS	MS	MS	46.58	3.29

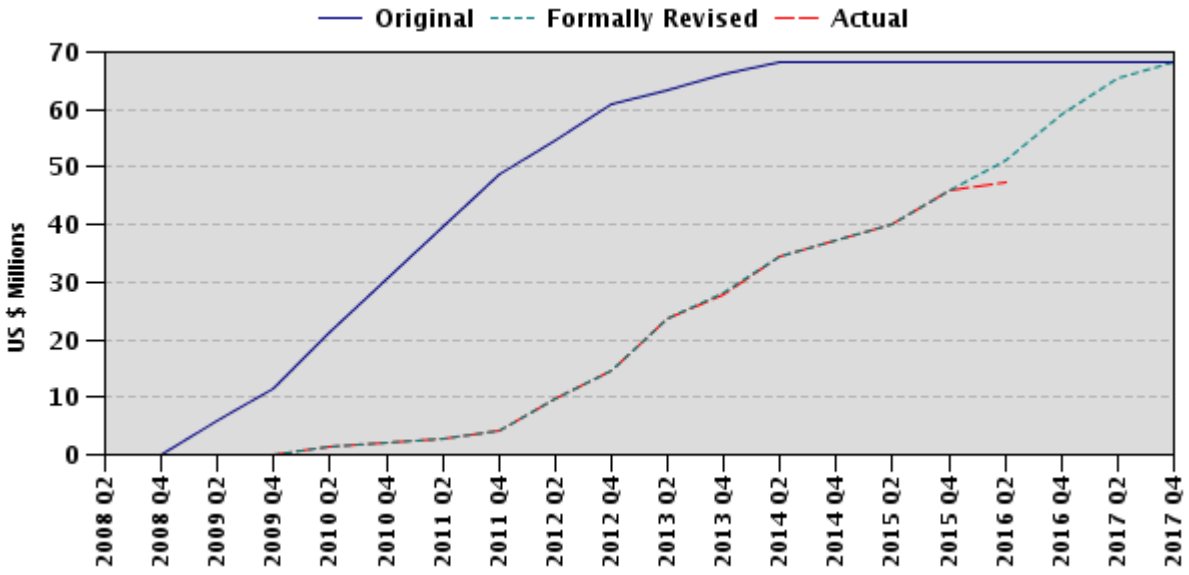
H. Restructuring (if any)

Restructuring Date(s)	Board Approved		ISR Ratings at Restructuring			Amount Disbursed at Restructuring in USD millions		Reason for Restructuring & Key Changes Made
	PDO Change	GEO Change	DO	GEO	IP	Project1	Project 2	
07/13/2012			MS	MS	MS	26.71	2.79	This restructuring was necessary to account for the initial implementation delays and the more recent progress, to reflect the project status more accurately at the time and to allow the project to complete its activities and meet its PDO/GEO within the agreed-upon implementation period. It involved the following modifications: (i) modification of project description; (ii) modification of results framework; and (iii) reallocation of Loan and Global Environment Facility (GEF) Grant proceeds. These changes did not involve any change to PDO/GEO.
08/05/2013			MU	MU	MS	30.11	2.79	Project Closing Date Extension granted from December 31, 2013 to November 30, 2015. Although the Project was progressing very well at this stage, and had overcome the initial difficulties, and all the investments have been prepared in detail and approved through Government Decisions, the remaining implementation period of one year was not sufficient to achieve the PDO and GEO.

09/07/2015			MU	MS	MS	45.94	3.15	Project Closing Date Extension to May, 2017 and reallocations between the project disbursement categories, both for Loan and Grant funds. This restructuring would ensure that the PDO and GEO are met by the closing date of the project, and in parallel, additional financing to scale-up the current Project at the national level is prepared with direct support of the fully staffed and functional PMU. This third restructuring was approved by the Bank with the understanding that project implementation continues and accelerates, with contracts continuing to be signed and timely implemented.

I. Disbursement Profile

P093775



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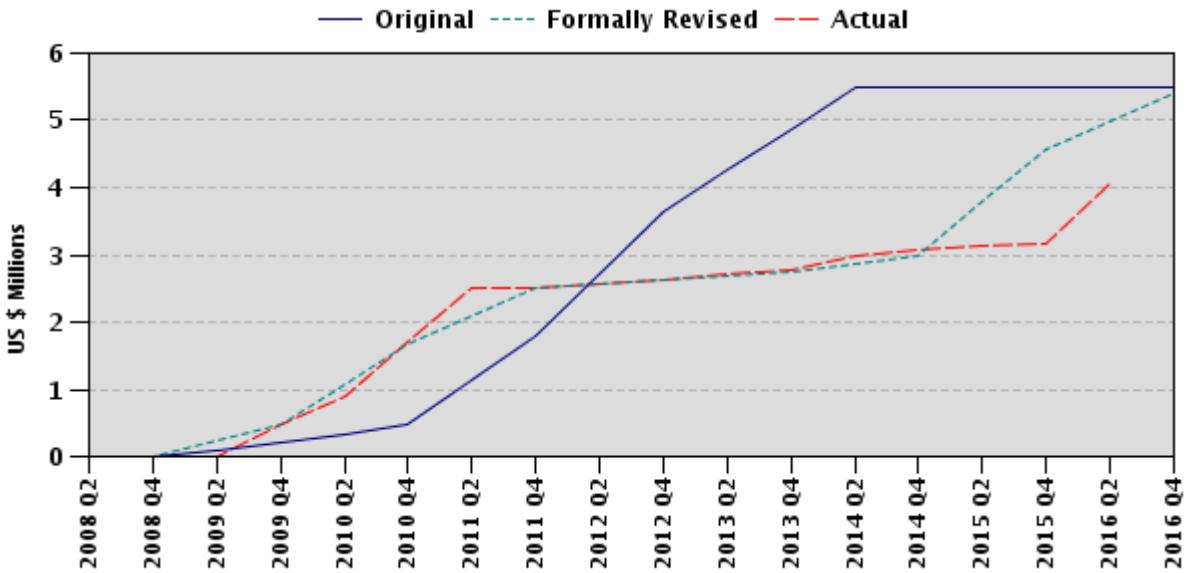
Original
Formally Revised
Actual
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2016 Q4

1. Project Context, Development and Global Environment Objectives Design

1.1 Context at Appraisal

A. Country and sector issues

1. **Romania's accession to the European Union on January 1, 2007 represented both a remarkable achievement and an immense challenge, notably in the area of EU-mandated environmental compliance.** Romania closed negotiations on the environment chapter of the *Acquis Communautaire* in November 2004, with detailed time-based agreements for adoption and implementation of regulations by accession and specified implementation periods for costly and difficult areas. Compliance with the environment *acquis* at the time of Project preparation was estimated at a net present value (NPV) of Euro 17 billion over a period of 11 years—the highest for any accession country. Agreements with the EU for improved water management included addressing nitrate pollution from agricultural sources. At the time of Project preparation, Romania had progressively begun investing in improved environment infrastructure with the support of EU pre-accession funds, and wanted to expand coverage of these investments into the next decade and beyond with continued substantial support from the Structural and Cohesion Funds.

2. **Many small farms with poor livestock management and lack of knowledge of environmental impact.** Romanian agriculture was dominated by individual and household farms, with around four million agricultural holdings, varying from less than 1 ha to 2,000 ha.[2] Households in the Nitrate Vulnerable Zones (NVZs) had on average 2.2 hectares of arable land and livestock (one or two cows, pigs, chickens, and/or sheep), housed close to family dwellings, without adequate animal waste storage. Practices for animal manure collection, handling, and storage varied depending on local traditions; however, at the time of Project preparation the vast majority of households did not have mechanisms in place to prevent direct seepage of effluent into soil, surface and ground waters. Many small and medium-sized farms typically did not integrate environmental protection into their on-farm practices as they often lacked awareness of alternatives to meet the Nitrates Directive.

3. **Historically, rural water supply and sanitation had been low government priorities.** The water and wastewater service provision in Romania was low compared to other European countries. At Project preparation, of the 10 million people living in rural areas, 33 percent were estimated to have access to a piped water system, although fewer were presumed to benefit from such service, as many systems did not function properly due to poor maintenance and/or lack of funds. Many rural areas were dependent on septic tanks or cesspits at best (usually poorly built and maintained).

4. **The combination of underdeveloped sanitation, poor livestock management, and a large number of small farms with poor agricultural practices resulted in negative effects on infant health** through significant nitrate and microbial contamination of shallow groundwater—the main source of potable water in rural areas. The effects of this were observed in high concentrations of nitrates, an indicator of general pollution and contamination affecting both environment and public health, notably through reported incidences of acute infantile *methaemoglobinaemia*—blue baby disease.

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[2] Some 45% were smaller than 1 hectare, and about 80% of all farms qualified as subsistence holdings.

5. **Regional Context:** Over the past decades, the Black Sea has suffered severe environmental damage as a result of eutrophication, due to increased nutrient runoff from agriculture, coastal erosion, insufficiently treated sewage and inadequate resource management that has led to long-term ecological deterioration. Black Sea Environmental Program (BSEP) studies revealed that 58 percent of the nitrogen and 66 percent of the phosphorous flowing in dissolved form into the Black Sea come from the Danube River Basin. Romania has the largest land drainage area of the 13 countries comprising the Danube Basin (29 percent) and the largest population share (27 percent). Its location at the bottom of the Basin presents special challenges in terms of managing waterways with pollutant waste loads from upstream countries, but it also means that Romania's land-based actions, particularly for nutrient management, have the most direct effects on the Black Sea. Therefore, actions taken in Romania towards reducing nutrient pollution flow into the Danube and the Black Sea were critically important and would result in benefits to other riparian states.

B. Rationale for Bank and GEF involvement

6. The Bank had considerable experience with projects related to reduction and management of nutrient pollution from agriculture in Poland and the Black Sea region, as well as in East Asia, and had played an important role in promoting exchange of best practices across countries through the Danube-Black Sea Strategic Partnership Program. The GEF-funded Agricultural Pollution Control Project (APCP), represented the World Bank and GEF's earliest efforts to mainstream environment and nutrient reduction considerations into agriculture, and served as a pilot for Romania and many other countries in the two Basins that replicated similar interventions. Moldova, Georgia, Turkey, Croatia, Serbia, and Bulgaria were all implementing or preparing investments under the Black Sea–Danube partnership, and had benefited from Romania's early demonstration. The successes of the Romania experience have been disseminated internationally to exchange practices with countries as far away as China.

7. The rationale for Bank involvement was to support the government's priority of reducing nitrates and the correspondent implementation of the EU Nitrates Directive. Romania's committed efforts towards EU accession, the favorable political climate and the recognition of the links between sustainable agriculture and the environment provided an excellent window of opportunity for the Bank and GEF to assist the country in undertaking a nutrient reduction program as part of its EU mandated Water Framework Directive, Nitrates Directive and agro-environment program. GEF involvement was viewed as necessary to ensure that countries in the wider region and internationally continued to learn from Romania's efforts to scale up to the national level with significant state funds; and in order to promote integration of other investments such as wastewater treatment, sanitation, and biogas with earlier tested actions. The project would be the first GEF-supported up-scaling effort, stemming from an earlier nutrient pollution reduction pilot.

1.2 Original Project Development Objectives (PDO) and Key Indicators (as approved)

To support the Government of Romania to meet the EU Nitrates Directive requirements by (a) reducing nutrient discharges to water bodies, (b) promoting behavioral change at the commune level, and (c) strengthening institutional and regulatory capacity.

1.3 Original Global Environment Objectives (GEO) and Key Indicators (as approved)

To reduce over the long term, the discharge of nutrients (nitrogen and phosphorous) into water bodies leading to the Danube and Black Sea through integrated land and water management.

1.4 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification

NA

1.5 Revised GEO (as approved by original approving authority) and Key Indicators, and reasons/justification

NA

1.6 Main Beneficiaries

8. The primary beneficiaries identified at appraisal were:

(i) Households, farmers' associations, family farms, individual farmers and school children in the 91 communes identified as NVZs able to attend training events, benefit from awareness raising campaigns, have access to commune-based investments (commune-level manure storage systems, sewerage networks and/or manure processing machinery), and/or household level manure storage systems (under Components I, II, III).

(ii) The Ministry of Environment and Sustainable Development (MESD) and the National Administration for Romanian Waters (ANAR, subordinate to MESD) and its regional units, the main recipients of capacity building (technical assistance and clarification of responsibilities) under Component II, as well as other national, regional and county agencies involved in implementing the EU Nitrates Directive and selected measures under the Water Framework Directives (i.e., Public Health, Agriculture, etc.).

(iii) County Councils, commune administrations, and farmers through the creation of eleven Training and Dissemination Sites (TDSs) (under Component I).

1.7 Original Components (*as approved*)

9. The Project was made up of four components originally designed to be implemented over five years: (i) Commune-based Investments in approximately 91 NVZs; (ii) Institutional Strengthening and Capacity Building; (iii) Public Awareness and Replication Strategy; and (iv) Project Management.

10. **Component 1: Commune-based Investments in Nitrate Vulnerable Zones (NVZs) (45.9 million Euro, of which 39.4 million Euro is IBRD, and US$2.1 million is GEF).** The project was designed to support a menu of investments focusing on the NVZs' designated 91 communes in ten river basins. In the first eighteen months, the project was designed to support the creation of eleven Training and Dissemination Sites (TDSs).[3] Selection of the counties was performed on the basis of the location of the maximum number of NVZs, proximity of the county

[3] Target counties are: Arges county (Arges-Vedea River Basin), Buzau (Buzau-Ialomita River Basin), Valcea county (Olt River Basin), Iasi county (Prut-Barlad River Basin), Bacau and Neamet counties (Siret river basin), Cluj county (Somes-Tisa river basin), Timis county (Banat River Basin), Bihor county (Crisuri River Basin), Mures county (Mures river basin) and Dolj county (Jiu river basin).

to the River Basin headquarters (in order to facilitate participation of the River Basin authorities in the implementation process), and willingness of the County Council to participate. In addition, TDS communes were planned to be selected against a number of criteria including the level and sources of nutrient pollution, willingness of the local administration and commune to finance part of the investments, proximity to major water bodies, and compatibility of the proposed project interventions with the County's plans for waste management and water supply. Subsequent project investments were planned to be rolled out to another 80 NVZs/communes in the 23 remaining counties so that the project was designed to support investments in a total of 91 NVZ/communes (see Annex 4 for data on the eleven counties and NVZs, and selection criteria). The menu of eligible investments from which communes were intended to prepare sub-project investment programs was set out as below.

- 1.a) Communal Storage and Handling systems to promote better management of livestock and household waste**.** Financing was provided for the installation of improved livestock and household waste storage facilities at village and household level, and equipment for waste collection and field application of manure in the selected communes (NVZ).

- 1.b) Planting of Buffer Strips and Pastures' Rehabilitation**.** The Project was designed to support the planting of vegetative buffer strips where water bodies require protection from nutrient discharges and on communal land not suitable for grazing, and the rehabilitation of small areas of communal pastureland when requested by the commune.

- 1.c) Water & Sanitation. The project was designed to finance rehabilitation or extension of *small-scale sewage collection and treatment* at two to three sites, where pollution was seen as imminent due to households having septic tanks with effluent leaking directly into the groundwater.

- 1.d) Promotion of Code of Good Agricultural Practices**.** The Project was designed to encourage farmers to adopt the Code of Good Agricultural Practices (CGAP), which had been prepared and updated under the APCP, in their management of crop and livestock enterprises. Investments were intended to cover the promotion of nutrient management practices including crop rotation, manure management, maintaining soil cover and crop nutrient management with soil testing, as well as organic farming, following the CGAP that farmers would be obliged to apply in the NVZs. A training program for advisory staff and farmers would be funded by the project with an on-farm demonstration program as the basis for disseminating results of improved practices.

- 1.e) Feasibility Studies**.** The Project planned to finance up to 100 feasibility studies for improving water and wastewater services, with the aim of leveraging external (EU) financing for investments. Priority would be given to communes that have an impact on trans-boundary waters and would not be limited to communes in the eleven counties selected for project investments. Within the project, GEF funds were to be provided to test and demonstrate the feasibility of biogas/energy co-generation of manure/organic household waste through anaerobic digestion in one commune. Initially, the latter was planned to be retained as a pilot activity, since GEF funds are limited and there was a need to obtain experience under Romanian climatic conditions and using communal platform waste. If the initial experience were to be deemed a success, it was planned to be scaled up through an application for future EU funds. Special attention was planned to be given to the promotion of cost effective solutions and plans to sustain operating and maintenance costs.

11. **Project Component 2: Support for Institutional Strengthening and Capacity Building (5.3 million Euro, of which 3.9 million Euro is IBRD, and US$2.7 million is GEF).** This

component was focused on building capacity within the Ministry of Environment and Sustainable Development (MESD) and their National Administration for Romanian Waters (ANAR), as well as other national, regional and county agencies involved in implementing the Nitrates Directive (i.e., Public Health, Agriculture, etc.).

- 2. a) Technical assistance was provided to MESD/ Ministry of Agriculture and Rural Development (MARD) to bring their legislation in line with EU Nitrates Directive regulations and selected measures under the Water Framework Directives, with emphasis on clarifying implementation and coordination responsibilities across agencies. Furthermore, the possibilities for strengthening legislation and enforcement to provide *ex-ante* mitigation strategies for dealing with livestock waste in the Romanian context were planned to be assessed, as well as options for introducing such measures during the life of the project.

- 2.b) Second, under this component, ANAR's (subordinated to the MESD) capacity was to be built as the designated lead for inter-agency working groups at the river basin and county levels for the Nitrates Directive, including coordinating efforts of the different agencies, and reporting on progress to the EU through MESD. As part of this capacity building, ANAR was to be provided with an additional 50 new monitoring wells, funds to repair additional wells, auto-labs, other small equipment, and training facilities, to respond to the new and increased monitoring responsibilities upon EU accession. Under this component, there was a possibility to provide additional support to institutions forming the Inter-Ministerial Committee for Application of the Nitrates Directive (ICA).

- 2.c) Third, this component was designed to support a comprehensive training program for staff of relevant national, regional and county level agencies that are members of the Nitrates Working Groups. The support for ANAR and staff training was planned to be directed at building the capacity required to meet the monitoring and reporting requirements of the Nitrates Directive. In addition, there was to be support provided for training activities and technical assistance to develop an institutional mechanism to enable beneficiaries and relevant national institutions to access EU funds, including preparation, implementation and management of projects.

12. **Project Component 3: Public Awareness and Replication Strategy (2.6 million Euro, of which 2.5 million Euro is IBRD, and US$0.2 million is GEF).** A broad public information campaign of the project's activities and benefits was planned to be undertaken at the local, river basin, national and regional levels to achieve replication of project interventions in other similar areas within Romania (NVZ-designated communes in non-focus counties) as well as other Black Sea riparian countries and EU candidate countries. In particular, this component was designed to promote improved rural sanitation in the NVZs, and implementation of good agricultural practices, such as composting, conservation tillage, crop rotation, etc.

13. **Project Component 4: Project Management (5.6 million Euro, of which 4.2 million Euro is IBRD, and US$0.5 million is GEF).** Under this component, the Project Management Unit (PMU) located within the Ministry of Environment and Sustainable Development (MESD) was established and staffed with ministry employees and consultants to serve as the implementation unit of the proposed project. The Water Basin Authority in each of the ten river basins planned to dedicate one or two staff to supervise and coordinate project implementation activities at the commune level.

1.8 Revised Components

14. **First Project restructuring.** A level 2 restructuring occurred on July 13, 2012 to allow the project to complete its activities and meet its PDO/GEO within the implementation period and to fine-tune the original project design with additional changes made to improve the capacity of the implementing agency. This restructuring included a number of changes under component 1: (i) a reduction in the number of communal waste platforms from 86 to 75 due to factors impacting tendering, such as lack of appropriate sites, and difficulties obtaining construction permits; (ii) support to community small farms for building on-farm individual animal waste platforms shifted from an expensive concrete-based platform to a cheaper and equally efficient plastic alternative, allowing more farmers to benefit; (iii) community wastewater investments were increased from the original two to three to nine villages, as a result of increased commune interest in participating and to accelerate nutrient management investments in NVZ communities; (iv) feasibility studies for construction of community waste water management systems, originally intended to be used for applications for EU funding, were cancelled due to lack of demand and availability of EU funds. Under Component 3, the local level public awareness campaign was redesigned and strengthened to reach more target groups with increased focus on hands-on and interactive activities such as local seminars for farmers (including visits to pilot farms); campaign caravan travelling through all 86 communes; materials for teachers and training sessions in schools; radio and TV shows (30 minute TV shows dedicated to INPCP aired every two weeks for six months); and promotion through social networks (e.g. blogs, Facebook, Twitter). Lastly, project implementation under component 4 was reinforced through additional staffing of the PMU to augment its technical and monitoring capacity in agriculture, safeguards, public awareness, and legal affairs. A reallocation of the Loan and Grant proceeds was necessary to reflect the proposed changes in project components described above.

15. **First extension of the Closing Date and second level 2 restructuring (August 5th, 2013).** Through this restructuring, the total number of commune platforms (Component 1) was reduced to 67 due to a combination of factors including: the increased cost of materials and equipment, a lack of sites with the appropriate public property designation and required minimum distance from inhabited buildings, natural reserve areas or watercourses, lack of access roads, and difficulties in obtaining construction permits.

1.9 Other significant changes

16. **Mid-term review.** The mid-term review took place as scheduled and confirmed that no changes were needed to PDO/GEO or project design. Amongst the primary project beneficiaries expected at appraisal, were also 91 communes in Nitrate Vulnerable Zones. An additional two indicators were added to measure progress towards the PDO at the mid-term review, Nutrient load reduction (Nitrogen (N)) achieved under the project (Tons/year), and land users adopting sustainable land management practices as a result of the project. The nutrient load reduction target, although a proxy indicator facilitated the tracking of progress towards achieving the EU Nitrates Directive. Due to the high interest of communes, some project activities such as tree planting and training of small individual farmers to apply different solutions for animal waste storage facilities were extended beyond the 91 communes so that the number of communes with at least one project intervention reached a total of 115.

17. **First extension of the Closing Date and second level 2 restructuring (August 5th, 2013).** At the request of the Ministry of Finance and MECC, the Bank extended the Project Closing Date for the Project's Loan and GEF Grant to November 30, 2015 (from December 31, 2013). This

second restructuring was requested and agreed upon as the project had had a substantially reduced budget allocation for 2013 due to a general budget scarcity at the government level; this situation led to delays, making it impossible to complete project activities and achieve its development objectives by the envisaged closing date. This request was also based on a revised and realistic implementation plan for 2013 to 2015 with clear deadlines for contracting and completion of each investment and activity. This was agreed based on three conditions: (i) MoPF and MECC ensure a multiannual allocation for the project of at least 50 million RON (approx. USD 15 million) in 2014, and 50 million RON in 2015; (ii) MECC, with the Ministry of European Funds ensure that proposals and funds are included under Operational Programs (2014-2020) for EU Nitrate Directive implementation; and (iii) MECC and MoPF ensure that the PMU is operational for at least four months after the Loan and Grant Closing Dates, until March 31, 2016.

18. **Second extension of the Closing Date and third restructuring (August, 2015).** At the request of the Ministry of Public Finance (April 7, 2015 and July 30, 2015 – initially requesting a 12 month Project Closing Date extension), the Bank accepted a Project Closing Date extension from November 30, 2015 to May 31, 2017 (18 months extension) for all components, and for both the Loan and GEF Grant Agreements. This restructuring would ensure that the Project's Development and Global objectives (PDO and GEO) are met by the closing date of the project, while in parallel, additional financing to scale-up the current Project at the national level is being prepared. This third restructuring was approved by the Bank with the understanding that project implementation continues and accelerates, with contracts continuing to be signed and implemented in a timely fashion. There has been no change in PDO and GEO, or in safeguard categorization. This extension was justified by the importance of this project, which continued to represent the only source of public investments which allowed Romania through the Ministry of Environment, Waters and Forests (MEWF) to fulfil its obligations under the EU Nitrates Directive. All remaining investments under the project had already been approved in terms of their technical – economic indicators, and detailed technical designs required for implementation. Without this extension, the full achievement of the Project's Development and Global objectives was at risk. The project had been facing implementation delays over the past six months, and while the disbursements had increased in this period, not all component activities would have been completed by the closing date of November 30, 2015. Without the extension granted, this delay in implementation would have adversely affected achieving the PDO and GEO by this closing date.

19. **Expanded reach of the Project.** Out of the list of 67 communes targeted in the project through the second restructuring, 7 communes became ineligible for manure management investments due to a drastic decrease in livestock. These communes were to be replaced with those with adequate livestock numbers and willingness to join the project. Meanwhile, the PMU identified 8 new qualified communes and signed agreements. Savings of approximately 7 million euro at contract signing were accrued due to strong competition in the bidding process for civil works for the 39 already constructed manure management platforms and 9 sanitation investments. Due to these savings accrued through the construction of the previous platforms (contracted values were lower than estimated budget), in 2014, 20 new localities were identified to be included in the Project, raising the number to 87. Since this was an increase of target, no formal restructuring was deemed necessary and it was mutually agreed during mission and in the AM.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

20. **The Project's design was sound overall.** Project objectives – both the PDO and GEO – were realistic and achievable through the planned component activities and as measured overall by the Results Framework, notwithstanding the initial delays as a result of a slowdown in the procurement process. The majority of EU pre-accession funds were targeted at larger investments, without similar investments in institutional capacity, rural development and smallholder farmers. The INPCP was designed in part to fill this financing gap. However, a more thorough analysis of permit requirements could have been undertaken during project preparation as well as an assessment of local government capacity to participate in the project.

21. **Lessons learned from prior interventions were included in the design of the Project.** A single county pilot in Calarasi helped to demonstrate both environmental and quality of life benefits through a concerted program of action. Three major lessons derived from this pilot which informed the design of the project are as follows**:** (1) local communities, farmers and other key stakeholders should be able to observe tangible results from mitigation measures to reduce nutrient discharge to ensure adoption and sustainability; (2) dissemination of information through a wide public awareness campaign is critical to the widespread adoption of new technologies and practices. Furthermore, information is needed early in the project cycle to overcome the considerable lack of understanding of the health and environmental benefits from improved waste management (most importantly, blue baby disease prevention), and achieve significant participation levels in project activities; and (3) to achieve environmental, social and financial sustainability, project activities must be site-specific and address local issues and needs. Early and continuous involvement of local administrations and communities in project preparation and implementation is essential to ensure ownership and make the project successful. During Project preparation, support from a World Bank-supervised Dutch Grant also helped to prepare specific NVZ "action plans" (required by the Nitrates Directive to prioritize mitigation measures to be implemented in the NVZs) for a sample of the NVZ designated localities as well as provide the baseline against which nutrient reduction would be measured under the project. This helped to ensure that priority localities were selected for support early on in the implementation of the INPCP project.

22. **The justification for Bank intervention was sound.** At the time of project preparation, the MEWF was nearing completion of the APCP, the WB and GEF's earliest efforts to mainstream environment and nutrient reduction considerations into agriculture, and served as a pilot for Romania and many other countries in the Black Sea and Danube Basins that replicated similar interventions. The Bank had considerable experience with the reduction and management of nutrient pollution from agriculture in Poland and the Black Sea region, and in East Asia, and has promoted exchange of best practices regionally through the Danube-Black Sea Strategic Partnership Program. The successes of the Romanian experience have been disseminated internationally. Romania's efforts towards EU accession, the favorable political climate and recognition of the links between sustainable agriculture and the environment provided a window of opportunity for the Bank and GEF to assist the country in undertaking a nutrient reduction program as part of its EU mandated Water Framework Directive, Nitrates Directive and agro-environment program. GEF involvement helped to ensure that countries in the region and internationally continue to learn from Romania's efforts to scale up to the national level with significant state funds. At the time, the Bank and GEF funding were the sole sources for investment carried out by Romania to fulfil its EU Nitrates Directive obligations.

23. **Most risks were adequately identified and rated;** mitigation measures were adequate overall. The risk that administrative arrangements may continue to evolve in line with decentralization and other ongoing reforms especially for the agriculture advisory services and the local Environmental Protection Agencies (EPAs) was rated as 'negligible', lower than it proved to

be in practice as the situation changed over the project's lifetime. Permit risks were not adequately identified during preparation. The permit approval process was time-consuming. This was further aggravated over time when the process changed and became more complex. The latter, however, could not have been anticipated at the time of preparation.

2.2 Implementation

24. **Project effectiveness delays.** The project suffered an implementation delay over a year at the beginning. Despite the project being approved on October 30, 2007, it became effective only on December 8, 2008. This delay occurred due to changes in government and the implementation of a new (unitary) policy on salaries which led to 90 percent of the Project Management Unit (PMU) staff leaving. This situation characterized the entire Bank portfolio in Romania at the time.

25. **Project implementation delays:** The project is still lagging behind schedule, despite almost 10 percent disbursement from the loan in the last eight months. Towards the end of the first extended closing date, procurement of several key investments was unexpectedly delayed due to long and cumbersome internal approval procedures, which would have resulted in a situation where activities would not have been fully operational by the previous closing date of November 30, 2015, and would have adversely affected the achievement of the Project Development Objective (PDO) and Global Environmental Objective (GEO). Changes in Government, austerity measures in response to the financial crisis, slow permit approvals, changes in permit requirements throughout the Project's lifespan resulted in construction delays for investments under Component 1. These challenges were overcome through Government commitments to providing adequate budget to complete commitments under the Project's components (from 2013 to the present). Project implementation has now significantly improved as the bottleneck in obtaining internal procurement approval has been removed.

26. **Delays in implementation have occurred due to a combination of factors some of which were outside the Project's control:** (1) Due to Government changes and delays in Government approvals. Bids under the Project now had to be approved at the highest level within the MESD delaying progress; (2) lack of budgetary support during the financial crisis leading to previously planned commune-level co-financing of activities to be dropped, and lack of PMU staff during early stages of project implementation as a result of the majority of staff leaving the PMU in response to salary freezes as part of the Romanian Government's austerity measures in response to the financial crisis and the time required to recruit and train new staff; (3) prolonged financial approval processes, as well as cumbersome processes for obtaining necessary permits. Under these circumstances, investment projects were required to go through a stringent government approval process before tendering and these investments already have a lengthy tender and implementation timeline and therefore are not conducive to fast disbursement early on. These changes resulted in confusion and delays while policies and permit requirements for manure platform under Component 1 also changed over the Project lifespan. Similarly, the risk that the project pre-financing by the Borrower would not be ensured appropriately was rated as 'substantial', and proved to be accurately assessed, as this lack of co-financing from 2011-2013 budget resulted in significant slowdowns for the Project.

27. Some key investments and activities were contracted at the beginning of 2015 with a delay of about three months (Pilot biogas plant and manure platform, Seini; Technical design of the agreed 20 manure management commune platforms). The consultancy services for agricultural demonstration program were contracted with a four month delay. All investment-associated activities still to be implemented under the project are expected to be completed by the new closing

date, May 31, 2017. This pertains to the construction of the last 20 platforms for manure management and equipment. The Pilot Biogas Plant in Seini works contract, despite its anticipated completion date of March 31, 2016, will have to continue for "operational acceptance", until end of June 2016..

28. Over the last four months (August to December 2015), project implementation continued, but with only a limited number of additional contracts being signed or delivered. At the end of 2015, the actual disbursements from the loan stand at 73.36%, and from the GEF grant at 73.75% percent. The remaining 26.25% percent of GEF grant funds are presently committed to the signed works contract for the biogas facility in Seini, Maramures County, which is in the final stage of construction.

29. **The Government's commitment was demonstrated through its ratification of the Danube River and Black Sea Conventions and has embedded these into EU accession agreements for the Nitrate and Water Framework Directives.** Reducing nutrient runoff (nitrogen and phosphorous from agriculture) into the Danube River and the Black Sea is an integral part of the country's environmental strategy as well as the Black Sea and Danube River Basin Strategic Action Plans.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

30. The four preliminary performance indicators listed in Section F(a) of the ICR Data Sheet were intended to track progress towards achieving the PDO and an additional indicator for the GEO. Two additional indicators were added to measure progress towards the PDO at the mid-term review, Nutrient load reduction (Nitrogen (N)) achieved under the project (Tons/year), and land users adopting sustainable land management practices as a result of the project. The nutrient load reduction target, although a proxy indicator, facilitated the tracking of progress towards achieving the EU Nitrates Directive.

31. **Design.** The M&E design was well developed at the project start and PDO/GEO indicators were designed to be measurable. The complementary set of Intermediate Outcome (IO) indicators (Section F(c) of ICR Data Sheet) was adequate at measuring progress towards both the PDO and GEO. However, several indicators originally listed in the PAD Results Framework were left out of the Implementation Status and Results Report (ISR) reporting as they were no longer deemed necessary to track progress towards achieving project activities. The adjustments made to the M&E design during implementation were an attempt to make it more functional.

32. **Implementation.** Support to the extension of Voina Training Centre and laboratory facilities and equipment as well as training provided to ANAR staff ensured that results could be linked to the achievement of the PDO and GEO as well as establishing the necessary infrastructure for long-term monitoring (i.e. through the installation of additional piezometers[4]). The project has established an outcome and results monitoring framework which was linked to the MEWF's system for reporting on EU funds and progress monitoring for environment acquis commitments. Project monitoring and evaluation was the responsibility of the PMU, which already had prior M&E capacity built during the implementation of APCP. Data to track indicator progress was procured

[4] A piezometer is a device which measures the pressure (or more precisely: the piezometric head) of groundwater at a specific point.

from surveys and administrative data sources. The main indicator data were collected using the baseline, mid-term and other project surveys commissioned by the PMU, along with more frequently collected data including those collected by ANAR to analyze water quality to estimate nutrient concentrations in water bodies. Due to the difficulty in attributing nutrient concentration reduction in water bodies directly to project interventions, the PMU used proxy methods to estimate reductions in nutrient releases in water bodies from project interventions. ANAR also collected relevant data from other agencies, e.g., Public Health Authority and Environmental Protection Agency (subordinated to MEWF) contributing to the creation of a project-specific monitoring network as required to complete the necessary data collection needs. ANAR, as chair of the Water Basin (Water Directorate) and County (Water District) level Nitrates Directive working groups also obtained further data where relevant in country.

33. Under Component 1, the original indicator 2 (Cost of measures for reduced discharge for 1 Kg of N) was not reported; however, it is captured indirectly under the economic analysis. Under Component 1.b) afforestation and pastu re rehabilitation, the original indicator 4 (percentage of targeted communes with tree planting and the pastures rehabilitation in the agreed project plans implemented) was similarly not reported upon in the ISR; however, related information was reported upon under indicator 10, introduced 12/4/2009 (Number of project communes implementing at least one of the following nutrient reduction measures: communal platforms, pasture rehabilitation, tree planting (cumulative)) as well as indicator 15 (Land area where sustainable land management practices were adopted as a result of project (Ha, Core)), introduced on 12/14/2012. Original IO indicator 10 (Percentage increase of rural population in project and non-project areas aware of and initiating/ implementing actions related to nutrient reduction) under Component 4 was similarly not reported on in the ISR, but elements of this indicator were captured under IO indicator 14 (Number of project communes implementing at least one of the following nutrient reduction measures: communal platforms, pasture rehabilitation, tree planting (cumulative)). After the restructuring on 7/13/2012, IO indicator 1 under Component 1 was no longer reported on as the corresponding activity was dropped (feasibility studies for community waste water management systems to be funded from EU Structural Funds).

34. **Utilization.** The M&E data has facilitated the assessment of project progress and provided the basis for guiding improvements to project implementation although several original PAD indicators were not tracked formally through the Project's M&E (ISRs). All utilized indicators have pointed to a slow rate of implementation from the start of the project until 2012. The initial slow progress indicated under PDO indicator 5 (Percentage of the population in the project area adopting preventative and remedial measures to reduce nutrient discharges)[5] prompted the team and the Government to shift emphasis from the inclusion of individual farm-level platforms to a focus on communal-level platforms to advance implementation. Through the process of implementing individual farm platforms, the PIU learned that too much customization further slowed down the installation of the manure platforms, reducing the number of beneficiaries that could be reached.

35. Social impacts have been monitored through periodic surveys (including beneficiary assessment modules), which are part of the project M&E.

2.4 Safeguard and Fiduciary Compliance

[5] This index measures various rural waste management and good agricultural practices.

36. The project has no pending fiduciary issues. Implementation of all procurement, financial management and safeguards is satisfactory. There have been no changes to the Project safeguards category and no environmental or social safeguards issues with regards to the preceding and current restructurings.

Environmental Safeguards:

37. Most of the technical/engineering aspects related to the environmental protection and mitigation measures implemented under the project are in line with the provisions of the Environment Management Plans developed for each works contract, compatible with national and international practice, and suitable for the types of works under implementation. Technical requirements for each construction include specific mitigations measures for environment protection and health and safety of the workers during the works implementation. The Bank team's safeguards specialists reconfirmed during implementation support missions that none of the investments implemented under the Project required land acquisition, or involuntary resettlement, and no critical aspects related to the social safeguards were identified. The site-specific EMP for the biogas investment in Seini commune, Maramures County, was prepared by the Contractor immediately after the contract signature, approved by the supervisor engineer and by the PMU, and delivered to the Bank for information. All of the investments/civil works were implemented in compliance with the World Bank environmental safeguards, and with proven environmental safety, with no significant impact to environment registered during the works execution, or during the operation phase.

Fiduciary Compliance:

38. **FM arrangements have operated satisfactorily throughout the project and FM risk remains moderate.** There are no outstanding audit reports or interim financial reports and reporting compliance has consistently been satisfactory. The full-scope financial management (FM) review has been carried out annually, with the most recent in November 2014 and all have concluded that FM arrangements are satisfactory. The project throughout its implementation was up-to-date in terms of interim financial reporting and actions agreed on. While progress has been achieved in implementation.

39. The following areas of financial management (FM) were reviewed annually: (i) project accounting and reporting arrangements, (ii) staffing, (iii) internal control procedures, (iv) planning and budgeting, (v) counterpart funding, (vi) financial manuals, and (vii) external audits. The FM arrangements of the project continue to be satisfactory and appropriate control procedures are in place. The accounting software used by the PMU has adequate security levels and its outputs are used to prepare the semi-annual unaudited Interim Financial Reports (IFRs) of the project. The most recent IFRs for the second semester of 2015, have been received on time, reviewed and accepted by the Bank. The audit reports for 2014 have been submitted in June 2015, by the agreed due date, with a clean (unmodified) audit opinion and no internal control issues mentioned in the management letter.

40. Although procurement experienced slowdowns during the initial years of project implementation, the institutional arrangements for procurement were consistently assessed as being adequate and procedures well-implemented according to WB procurement requirements. The Bank team conducted prior review of contracts and regularly supervised smaller contracts subject to post review. The INPCP procurement officer maintained a fully functional filing system. Procurement

supervision missions concluded that Project procurement was conducted in accordance with World Bank rules and procedures, and in line with Grant Agreement provisions.

2.5 Post-completion Operation/Next Phase

41. **Identification of a Follow-up Operation:** The request for continued support to Romania in implementation of the EU's Nitrates Directive was made by the MEWF and MoPF to the World Bank on April 7, 2015. At the start of the Project, in 2008, to meet the EU Nitrates Directive, 251 localities were designated as "nitrate vulnerable zones" (NVZs). The Project made progress on Nitrate Directive compliance in these areas originally designated as NVZs, as reported to and assessed by the EU. However, in 2013, Romania agreed to cover their entire territory under the Water Framework Directive and thus required their entire territory to be Nitrate Directive compliant. The proposed additional financing under preparation is planned to maintain the overall development objective to support the Government of Romania (GOR) to meet the EU Water Framework Directive and particularly EU Nitrates Directive requirements. It will follow the current project, and scale up activities on complementarity and demand-driven principles, and incorporate lessons learned thus far. It will expand coverage to the entire country while taking into consideration the location specific requirements of various farming systems and agro-ecological regions. Based on preliminary discussions, the project is intended to be implemented over a six year period, with an indicative lending envelope of an approximately EUR 48 million IBRD loan and EUR 2 million beneficiaries' contribution.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Rating: Substantial

42. The Project objectives, design, and implementation at the time of project preparation and at the time of this assessment remain highly relevant to Romania's development goals and environmental priorities. At the time of preparation, the Project was the only source of critical funds to support Romania towards meeting its obligations related to the implementation of EU Water Framework Directive. Until now, INPCP has been the only project in Romania funding direct investments for Nitrate Directive implementation in rural areas, providing important environmental as well as social-economic benefits and helping Romania avoid infringement for not meeting its EU Nitrates Directive implementation obligations. As the scope of the areas defined as nitrate vulnerable has changed from 251 localities designated as vulnerable in 2008 to the entire territory in 2013, the work under the Project has increased in relevance. Romania is committed to working towards Nitrate Directive Compliance, and this Project remains the only source of financial support for this work. This has resulted in the Government of Romania requesting continued World Bank support in this area through an Additional Financing under preparation.

43. The Country Partnership Strategy (CPS) at Project Design for Romania confirmed that the environment remained a priority area for Bank assistance; the current CPF is still under preparation. The Bank's 2004 Romania Country Economic Memorandum includes a section on the environment and identified the following key challenges of the environment acquis; (a) strengthening institutional, administrative, and operational capacity for implementation of the environment acquis; (b) ensuring the fiscal space for and lowering the costs of meeting proposed environmental investments; (c) development of mechanisms to improve affordability and address social costs of improved environmental services; and (d) accelerating the capacity of the private

sector (and other non-government parties) to meet EU Environment standards in line with improving market competitiveness. The Project also contributes to affordable solutions to address social costs of improved environmental services through the construction and operational maintenance works of platforms. Lastly, the Project helps improve the quality of drinking water in poor rural areas, by meeting its developmental objective of reducing nutrient pollution in Romania's water bodies in the project area. Together with the promotion of behavioral change at the community level, this translates in better health endowments and practices for householders in poor rural areas.

44. The Results Framework utilized was appropriate in assessing progress towards meeting the Project's stated objectives (both PDO and GEO) indicators. The complementary set of Intermediate Outcome (IO) indicators (Section F(c) of ICR Data Sheet) was adequate at measuring progress towards both the PDO and GEO. Several indicators originally listed in the PAD Results Framework were left out of the Implementation Status and Results Report (ISR) reporting as they were no longer deemed necessary to track progress towards achieving project activities. The multiple adjustments made to the M&E design throughout implementation continually improved on the functionality of the framework and improved the ability to track progress on the PDO and GEO.

45. The project has helped to develop and demonstrate an affordable and scalable methodology that could be extended to the entire territory with some location specific adjustments. The experience gained and capacity built under INPCP are an asset and could be utilized in subsequent efforts. The project has significantly contributed to institutional strengthening, coordination and capacity building within the MEWF, ANAR and concerned agencies, local governments and communes, with improved public awareness and information towards compliance with this important EU water legislation. MEWF still requires a longer term programmatic approach to achieve the overall objectives, and a continuation of the Bank's support was requested.

3.2 Achievement of Project Development Objectives and Global Environment Objectives

Rating: Substantial

46. **At least 80 percent of targeted NVZs show 10 percent reduction in nutrient load discharge to water bodies.** Based on the latest monitoring data, 61.5 percent of targeted NVZs showed 10 percent reduction in nutrient load discharge in ground and surface waters in the project area due to project investments in improved manure storage and handling systems, sewerage and waste-water treatment plant investments, public awareness activities and improved institutional administrative capacity. Despite the reduced scope of pasture rehabilitation, this objective has been substantially met and as a result Romania is on its way to meeting nitrate reduction targets and compliance with the EU Nitrates Directive.

47. **At least 50 percent of the population in the project area adopted preventative and remedial measures to reduce nutrient discharges.** The current value, according to the Second Mid-Term social survey carried out within the project is 52.6 percent. This indicator has been met and it is expected that, by the end of the project, an even larger portion of the population will adopt such preventive and remedial measures to reduce nutrient discharge. Part of this success was due to the project's very active and effective public awareness activities. Many educational and demonstration events were organized at National, river basin and community levels to reach different target audiences from relevant national level policy making and regulatory representatives to local authorities, farmers and school children. As a result of the successful nation-wide

information campaigns conducted through television, radio and various social media, nitrate discharge became a topic of general interest and public awareness.

48. **Improved inter-governmental coordination and capacity to assess, monitor and report on progress with implementation of the EU Nitrates Directive.** The Project has fully met this objective as it has provided technical assistance to the MEWF, MARD and ANAR to ensure that legislation is fully harmonized with EU regulations related to the EU Nitrates Directive and the Water Framework Directive and helped clarify the institutional responsibilities for effective implementation of the legislation related to the Nitrates Directive. The Project has continuously supported the Nitrates Committee, which was established for the implementation of the regulations that transposed the Nitrates Directive in the Romanian national legislation. One major contribution under the Project was support given to the Nitrates Committee through the preparation of a new version of the Code of Good Agricultural Practices. The Project also supported the implementation of a comprehensive training program for staff of relevant national, regional and county level agencies that are members to the Nitrates Directive Working Groups, with more than 400 specialists trained to date.

49. **Favorable EU assessment of Romania's progress towards meeting EU Nitrates Directive.** The reports prepared by Romania on the Nitrates Directive implementation for the reporting periods 2004-2007 and 2008-2011 were submitted on time and were accepted by Environment Directorate General of the EU Commission, resulting in this objective being met to a high extent. A new report for the period 2012-2015 is under preparation. EU assessment of Romania's progress towards meeting EU Nitrates Directive based on 2011 report is favorable and 2015 report under preparation is expected to be even better.

50. **Increased awareness of linkages between local actions and impact on Black Sea and Danube River water quality.** As a general tendency, the data from 2008, 2012 and 2014 surveys show that the population is more aware about the polluting effects of improper agricultural practices on the local environment but less informed about the polluting effects of improper agricultural practices on the national environment, including the Danube River and Black Sea. However, in this particular case of Danube River and Black Sea, there is a small positive trend of increased awareness regarding these types of effects from 16 percent in 2008 to 21.5 percent based on the most recent report; this objective is 71.7% met. Future information campaigns should focus more on the link between the pollution effects at local level and its consequences at national level, in order to increase the awareness of polluting effects on the Black Sea and Danube River.

51. **The Project has significantly improved the livelihoods and socio-economic well-being of the rural population.** The Project contributed to the creation of jobs for the rural poor and improved their incomes through the construction and operation maintenance works of the manure management platforms and wastewater treatment plants. It also contributed to savings for farmers, through their reduced need for chemical fertilizers as they started replacing their use with manure, reducing the costs of agricultural inputs. There were also visible improvements in sanitation at village level and general hygiene of the villages, which led to a decrease in the number of reported incidences of blue baby disease. Finally, through compliance with the EU Nitrates Directive, many more farmers will be eligible to apply to EU agriculture grants programs.

52. A detailed summary of the Project achievements and outputs per components may be found in **Annex 2**.

3.3 Efficiency

Rating: Modest

53. The Project achieved clear benefits towards addressing key elements in nutrient pollution control in Romanian waters and the Black Sea from poor agricultural practices in the Danube River Basin. With proper management of manure and its use as fertilizer, on average 70 percent of nutrients (N, P, K) contained in the composted manure are used by crops with a direct benefit for farmers reducing their reliance on purchased fertilizers, increasing crop yields and improving soil health. Also, the adverse social and environmental impacts from nutrients pollution are attenuated. By midterm, 62 manure storage platforms with equipment to handle the manure had been completed. Nine cost effective sewage systems have been financed. Project investment cost stayed within the limits established in the feasibility study. The Second Mid-Term Survey (2015) reported that in the communes covered by the project financing, manure collection and storage improved by 11.3 percent. It is estimated that in these communities cost effectiveness of the investments in the manure storage platforms with equipment is approximately US$33.6 /kg of N. This is within the limits of US$10-40 /kg suggested in the Project Appraisal Document.

54. An Illustrative Cost-Benefit Analysis (CBA) of the investment concluded that taking into account ecosystem services retaining benefits, global benefits and health benefits, Internal Rate of Return (IRR) of the project are estimated in the range from -5 percent to 5 percent. This analysis, however, does not include some benefits omitted due to lack of quantitative data (property value and tourism reduction). If total benefits of the project are approximated by the penalties for discharging nutrients in waters causing pollution over the maximum admissible concentrations, annual benefits in terms of avoided penalties could increase IRR up to 13 percent, an acceptable IRR for a private investor.

55. The financial sustainability of the Project was based on the assumption that operational costs of the manure management platform systems and maintenance cost of sewage plants were to be covered by the communes. The Second Mid-Term Survey reported that farmers were not yet willing to pay for manure management. However, they were ready to pay for the sewage systems at an amount comparable with similar per capita costs achieved in wastewater schemes throughout Romania. For manure storage platforms, the Government of Romania could internalize some of the external benefits of proper manure management in the form of subsidies to communes or introducing user fees to cover operational costs for each commune. Another approach is to sell compost produced by the manure storage platforms in the market. As organic farming in Romania is expanding, additional marketing research on the cost of bringing compost to this market and a market price survey is needed and will enhance financial outcome of the project.

56. Additional information on the economic and financial analysis is found in Annex 3.

3.4 Justification of Overall Outcome and Global Environment Outcome Rating

Rating: Moderately Satisfactory

57. Overall ratings: a) Relevance – Substantial; b) PDO – Substantial; and c) Efficiency – Modest. This gives an overall rating of moderately satisfactory for the project.

58. **The Project Development Objective (PDO) and Global Environmental Objective (GEO) have been mostly achieved.** The Project has made significant progress towards achieving

its Development and Global Environmental objectives.[6] Despite delays, and a slow start, burdensome government procedures, and procurement challenges, this complex project has achieved most of its objectives (with the remainder anticipated to be achieved by the revised closing date).

59. The Project objectives and design remain relevant and are consistent with Romania's development priorities. It has helped in developing and demonstrating an affordable and scalable methodology for manure management and wastewater treatment that could be extended to the entire territory (with some location specific adjustments), as well as provided information for the Code of Good Aagricultural Practices. The experiences gained and the capacities built under INPCP are an asset which can be capitalized upon in subsequent efforts.

60. While some of the activities fell short of achieving the targets, they were effective as they contributed to the training of key government agency staff, built linkages with different partners, strengthened national, basin, commune and farmer level facilities and capacities that would facilitate scaling up this program nation-wide. There is now a positive trend observed in the rural population's adoption of environmentally-friendly practices and greater absorption of available national and EU resources, which calls for optimism and sustained work.

61. Under Component 1, which includes physical investments for animal waste management, the bulk of major activities that contribute to meeting the reduction of nutrient discharges to water bodies are largely but not fully implemented. Investments for 67 communes are almost complete (e.g., 63 out of targeted 75 communal platforms completed; 1136 out of 1350 individual farm platforms for manure management completed; 4014 out of 5400 household waste bins delivered/contracted for delivery), and one pilot biogas plant is under construction.

62. Under Components 2 and 3, activities are anticipated to be completed by the closing date of May 31, 2017 and the following results have already been achieved: (i) legislation harmonized with EU regulations related to the EU Nitrates Directive and relevant measures under the Water Framework Directive; (ii) about 400 specialists of the Nitrates Directive Working Groups trained at the national, regional, and county level; (iii) public awareness program at the national and river-basin levels, including dissemination of Project benefits have been completed.

3.5 Overarching Themes, Other Outcomes and Impacts
(a) Poverty Impacts, Gender Aspects, and Social Development

63. **The Project contributed to jobs creation for the poor.** The construction and operation maintenance works of the manure management platforms and wastewater treatment plants has created several jobs and improved the income of unemployed low-skilled workforce in several of the communes, thus contributing to the CPS pillar on growth and jobs creation.

64. **There were visible improvements in sanitation at village level and general hygiene of the villages.** At the beginning of the Project, in many places there were significant nitrate and microbial contamination of shallow groundwater. This was an indicator of general pollution and contamination affecting both the environment and public health, notably through reported incidences of acute infantile *methaemoglobinaemia*—blue baby disease. The information outreach

[6] The PDO and GEO will be fully achieved within the new closing date (May 31, 2017).

of this Project, aimed at children, led to better informed and more conscious parents. 104 seminars were held in schools from over 87 localities included in the project. Through these targeted communications activities (workshops, lesson programs, materials, demonstrations) aimed at school children, many parents have also changed their water use behaviors, recognizing that well-water is unsafe for consumption. Consequently, over the past years there was a decrease in the number of cases of blue baby disease (*methaemoglobinaemia*).[7]

65. **The project did not include explicit gender or social inclusion aspects.** However, some communes which have significant Roma communities (Albesti de Arges) have benefited from the Project, particularly in the extension of wastewater treatment under Component 1.

66. **Men disproportionately attended workshops and training events.** Aside from activities aimed directly at school children (Grades 0-8), communications strategies were not differentiated based on gender, demographics or minority status (notably Roma). As a result, men predominantly attended training sessions. Targeting communications activities at different sub-groups (including outreach to more women) of the beneficiary populations should be examined for any follow-on activities.

(b) Institutional Change/Strengthening

67. The project provided technical assistance to the MEWF, MARD and ANAR to ensure that legislation is fully harmonized with EU regulations related to the EU Nitrates Directive and the Water Framework Directive. The Project helped clarify the institutional responsibilities for effective implementation of the legislation related to the Nitrates Directive.

68. The Nitrates Committee was established for the implementation of the regulations that transposed the Nitrates Directive in the Romanian national legislation. Its members are representatives of the MEWF, MARD and the Ministry of Health. Its main tasks are (i) to prepare the action programmes for NVZs, (ii) to approve revisions of the Code of Good Agriculture Practices for the Protection of Water against Pollution with Nitrates from Agricultural Sources, and (iii) to prepare the necessary measures for the implementation of the Action plan. The Project has continuously supported the activity of the Committee; one major contribution was to support the Nitrates Committee by preparing a new version of the Code of Good Agricultural Practices. This was a revised version of the old Code of Good Agricultural Practices (approved by Ministerial Order 1.182/1.270/2005) developed within the Agricultural Pollution Control Project.

69. The Project supported the implementation of a comprehensive training program for staff of relevant national, regional and county level agencies that are members to the Nitrates Directive Working Groups. 401 specialists from MEWF, MARD, ANAR, Environmental Guard, County Pedological and Agrochemistry Offices and Environmental Protection Agency that are involved in the Nitrate Directive implementation were trained within the project.

70. The project built capacity for the National Administration "Romanian Waters" ANAR technical staff, through a diverse range of trainings: total organic carbon - TOC analysis (15 specialists), molecular absorption spectroscopy – UV-VIS (42 specialists), geographic information

[7] According to a 2013 report issued by the National Institute of Public Health, the number of blue baby disease cases decreased from 77 in 2009 to 63 in 2013 in the counties where INPC Project had interventions. The most significant drop was in Iasi, Buzau, Bacau, Mehedinti and Prahova counties.

systems – ArcGIS (39 specialists), implementation of the Nitrates Directive at county level (51 specialists), sampling procedures for technicians (41 specialists), analysis of nutrients and metals in sediments and water suspensions (32 specialists), specific analysis for phytoplankton, phytobenthos and macrozoobenthos (41 specialists), standards and methodologies (41 specialists). Additionally, the capacity of commune staff and mayors was also enhanced through the process of project investments and education programs.

71. The construction of a fully operational ANAR training center (Voina Training Centre) and laboratory equipment was completed in October 2012 and is under use by ANAR. Additionally, the national underground water monitoring network was extended with 63 new piezometer sites added to ANAR's facilities for water quality monitoring. Water quality monitoring manuals were prepared, including maps showcasing nitrates concentrations trends in surface and groundwater.

(c) Other Unintended Outcomes and Impacts (positive or negative)

Positive outcomes and impacts:

72. **Information outreach aimed at children led to better informed and more conscious parents.** 104 seminars were held in schools from over 87 localities included in the project. Through targeted communications activities (workshops, lesson programs, materials, demonstrations) aimed at school children, many parents have also changed their water use behaviors, recognizing that well-water is unsafe for consumption.

73. **Private water bottling companies adapted their labeling and marketing strategy to raise awareness on the nitrate content of their water.** As a result of the popularity of the Project's nation-wide information campaign on nitrates discharges and health-related risks, water bottling companies independently started to report information on the nitrate content of their waters. The private companies adapted their labelling and marketing strategy to better inform their customers on the risks posed by nitrates for health.

74. **Roma community benefited from sewage treatment extension.** Even though not explicitly targeted through the Project, some localities that have significant Roma communities have benefited from the Project. One example is the case of Albesti, where the sewage treatment network was extended to reach the Roma community, with a high population density, thus reducing their risk of exposure to water supply contaminated with nitrates and bacteria.

75. **Increased demand of manure platforms from other localities.** The successful installation and operation of manure platforms in the various localities across the country, has led to an increased awareness of the benefits by neighboring mayoralties and an increased demand for such solutions.

76. **Increased demand for coverage of sewage network from households.** Within the targeted localities, the new works for a sewage network has led to an increased demand from households located on side streets.

77. Composting has expanded beyond manure to include vegetable waste (leaves, stalks, etc.), household waste collection through the provision of additional container options on the platforms. (There is a possibility to change the scope of the platform to include other types of waste; however, this requires new permits for different types of operations).

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

78. The situation of the four groups of communes participating in the survey of 2014 was viewed as having been improved compared to the situation in 2008.[8] The overall socio-economic conditions have improved, through the changes in the structure of the population, number of animals and the types of agricultural land use. This is reflected in the decrease in average age of household heads, an increase in their level of education and an increase in their net income. A negative trend in the ownership of large animals and a positive trend in raising smaller animals, especially in the case of agricultural companies, was observed. It remains to be seen if the end-of-project evaluation will confirm these trends.

79. There was also an increase in the availability of clean water, access to the sewerage network and garbage collection systems. Also, the population surveyed improved their knowledge and awareness of the pollution effects of improper waste management and storage, as a result of the Information and Public Awareness campaigns. The participation rates in activities of planting of vegetative buffer strips and training on the Code of Good Agricultural Practices was somewhat low but the participants' level of satisfaction with these activities was quite high. More information on the Beneficiary Survey results is provided in Annex 5.

4. Assessment of Risk to Development Outcome and Global Environment Outcome

Rating: Moderate

80. As an EU Member State, Romania is obliged to comply with the implementation of the EU Nitrates Directive. INPCP is the only project in Romania that finances direct investments in rural communities and it supports capacity building for compliance and improved agricultural practices. The program is particularly important for farmers to avoid being penalized for non-compliance with eco-conditionality norms applied for getting the EU support for agriculture (direct payments). Activities under the project are of increasing relevance as the scope of the areas defined as nitrate vulnerable has increased from 251 localities designated as vulnerable in 2008 to the entire Romanian territory in 2013.

81. However, despite its importance at national and rural level and even with the recent Project closing date extension, there is a risk that political and governance factors could trigger delays in implementation (see paragraph 40) that would slow progress and the achievement of the PDO in the specified timeframe. Due to upcoming elections in 2016, there may be a new change in Government's leadership. Leadership and staffing changes often result in a lack of project ownership issues in the short-run. Additionally, the risks of new bureaucratic burdens along the way may be possible. These risks will be mitigated through keeping open communication channels with the Ministry of Finance, MEWF and PMU staff who will be following up on project progress and clearance procedure changes.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Satisfactory

[8] There were four groups made up of 43 participating communes.

82. The Bank clearly identified a priority area of strategic importance for improvement relevant to the Romanian environment, public health, and improving competitiveness of the agriculture and rural sectors, as well as facilitating compliance with the obligations of EU membership laid out in the *Acquis Communautaire*. The activities under the Project clearly targeted priorities identified under the CPS and supported ongoing efforts towards compliance with the EU Nitrates Directives, supporting Romania's path towards EU accession. Additionally, compliance with the Acquis Communautaire had the potential to open up access to additional EU agriculture funds to Romanian Farmers, with a direct impact on further improving their livelihoods. Lessons learned from similar nutrient management projects including the original Bank-supported pilot project in Calarasi were integrated into Project design, as well as lessons learned throughout project implementation in order to adjust components to maximize their effectiveness.

(b) Quality of Supervision
Rating: Satisfactory

83. The project experienced significant disbursement delays in the first year, resulting in Project Implementation Progress downgraded to Moderately Unsatisfactory in December 2009. Despite the Bank's timely supervision and identification of causes of the disbursement difficulties, it was unable to change these exogenous factors: reduced budget availability at the MEWF, changes in the procurement review process at the national level, and permit requirement changes resulting in the delays.

84. The Bank closely supervised Project implementation through semi-annual and annual (2010 and 2011) missions, fiduciary reviews and maintained a productive dialogue between the PMU, MEWF, ANAR and other stakeholders. Issues were timely raised and reported on thoroughly in official documentation (Aide memoir (AM), ISRs, mid-term review, and others).

85. The major implementation and disbursement issues were related to the Government's reduced budget availability and revised procurement approval process which were flagged in a timely fashion along with significant delays resulting from an understaffed PMU (as a result of PMU staff leaving and new staff having to be hired and trained). Corrective actions to improve disbursement and remain on track to fulfilling the PDO and GEO were highlighted in the MTR, AM and ISRs. Additional actions under the components were agreed upon during Implementation support missions and progress reported on. Remaining procurement issues in 2014 were addressed through an agreement that two major remaining procurement procedures for the last 20 communal platforms and two sewerage systems would be divided into regional batches to speed up the process. In addition, building up the procurement capacity in the PMU for this type of project requires additional time for the required capacities to be built and for the investments to come online.

86. Safeguards and fiduciary compliance was satisfactory throughout the Project. All works have been implemented in accordance with the health and safety requirements and in compliance with local and Bank's environmental safeguards.

(c) Justification of Rating for Overall Bank Performance
Rating: Satisfactory

87. The achievement of Project outcome was a result of the combined Government commitment and Bank support provided. Combatting nutrient pollution in waterways has remained a country priority from project preparation through to implementation. Preparation learned from

the Calarasi Pilot Project and institutional, budgetary, and regulatory obstacles were overcome through guidance given to the PMU and MEWF, which allowed the project to overcome disbursement and implementation delays and remain on track to achieving its overall targets. The rating is satisfactory, combining the two individual ratings on Bank Performance in ensuring Quality at Entry and Quality of Supervision ratings as per ICR guidelines.

5.2 Borrower Performance
(a) Government Performance
Rating: Moderately Satisfactory

88. Government commitment to the Project was strong during preparation and the start of implementation with a fully staffed PMU in Bucharest and decentralized in the ANAR water basins. Further demonstrating their support, in 2009, the Inter-Ministerial Committee for the Implementation of the EU Nitrates Directive was convened. However, significant delays in approving contracts as a result of increasingly complicated procurement approval processes, and a lack of government budget resulted in a significant slowdown in progress on the Project's planned investments and activities. At the same time, there was a high turnover of PMU staff due to salary changes and changes in government, resulting in a loss of institutional project memory and further slowdowns in Project activities. In 2012, the new Minister of Environment took action to fully staff the PMU on a competitive basis and assigned the Deputy General Secretary the role of project implementation oversight, leading to significant improvements in implementation, and resulting in disbursement significantly improving from 2012 to the present.

(b) Implementing Agency or Agencies Performance
Rating: Satisfactory

89. Similarly, during the lifetime of the Project there were several changes in policy and regulations related to manure platform at the level of the MEWF which resulted in further delays. There were also difficulties for some communes to obtain the necessary permits to begin use of these platforms after their construction, endangering the investments' potential to demonstrate tangible positive results and for the project to meet its PDO and GEO. This permit approval slow-down also shows that there was a lack of coordination between the national and local levels of government agencies and ministries and commune government to facilitate a more effective permit allocation process. In many ways these issues were beyond the control of the PMU, but had a negative impact on the Project's ability to carry out investments in a timely manner.

90. The PMU housed within the MEWF was very effective in having the support of the Ministry, guiding beneficiaries through the investment tendering and application processes. Their direct communication with concerned Ministries and agencies including local stakeholders, local city councilors, mayors and other beneficiaries was invaluable in gaining their confidence and trust.

(c) Justification of Rating for Overall Borrower Performance
Rating: Moderately Satisfactory

91. As evidenced by the Government's commitment to achieving the PDO, GEO and the direct field supervision carried out by the PMU, overall borrower performance is rated as moderately satisfactory. Despite the initial two-year disbursement lag, followed by Government budget, regulatory and procurement oversight changes, actions taken by the MEWF and the committed staff of the PMU have led to good progress in achieving the PDO and GEO. The rating is moderately satisfactory, the lower of the two individual ratings on Government and Implementing Agency Performance ratings as per ICR guidelines.

6. Lessons Learned

92. Project experience highlighted the following important factors for successful and timely implementation:

Implementation:

93. **Longer term programmatic engagement is needed for sustained results:** Lessons from other projects, notably the pilot in Calarasi proved useful in designing components, and this initial pilot is continuing to lead the way in the area of sustainable manure management. In Calarasi there is a continued upward trend in the utilization of manure, even with a downward trend in livestock ownership.

94. **Maintaining flexibility in activity sequencing**: It was observed by the PMU that if investments come first, project implementers have several years to support the investment with training and information. On the other hand, it was also observed that if project implementers begin with workshops, they start to demand investments. In the project up to now, the approach to investments was 'first come first serve'. Project design should remain flexible and ready to take advantage of investment and/ or training opportunities that present themselves during project implementation.

95. **Examine the potential for local commune involvement/feedback from communes in procurement process:** If and where possible and along with complying with procurement guidelines, it was highlighted that incorporating local (commune) level input into the procurement selection process and/or keeping the commune informed along the different steps has the potential to increase buy-in, understanding, speed and efficiency in the process of infrastructure investments. This should all be ensured while maintaining a centralized procurement oversight function.

Investments and Project Preparation:

96. **Review permitting requirements, land use regulations and the investment approval process during project preparation and maintain open lines of communication with permitting bodies:** Project preparation should include a thorough review of the permitting requirements and standards for construction of Project-supported infrastructure. Early evaluation of permitting requirements can prompt early resolution of potential issues, avoiding implementation delays. It was observed that delays in issuing necessary permits for investments could have potentially been avoided if a pre-approval process for prior investments was put in place. This necessitates early and continuous communication between the Project implementing agencies, the local contractors, local government and the permitting bodies. Pasture rehabilitation under Component I did not contribute significantly to the fulfilment of project goals due to legal status of the land, making it difficult for the project to operate on lands best situated to reduce nitrate pollution around water bodies. The current land use policy needs to be reviewed and solutions found to develop buffer zones around water bodies as required under the Nitrates Directive.

97. **Maintain flexibility in options for co-financing:** Co-financing of local investments under Component I was originally intended to gain local buy-in at the Commune level. Due to the Romanian Government's response to the economic crisis, commune co-investments dried up in 2009. Before implementation, operational sustainability of investments needs to be assessed; i.e. whether there is adequate operational budget for maintenance and human resources.

Sustainability:

98. **Ensure that communes can sustain operating and maintenance costs of investments and the long-term flexible use of platforms:** Plans for commune platform plans should include details on how to store other types of waste where relevant. Before construction, more discussion with communes on how platforms and other infrastructure can be better integrated into development plans should take place to ensure that this infrastructure can be quickly put to use and ensure its continued usage. Consideration should be given to alternative uses of these structures beyond manure and waste storage, and the correspondent permitting requirements, given that some of the communes will experience a shift whereby they will no longer have the same quantity of livestock and manure storage requirements. An analysis of trends in livestock ownership in rural areas should precede the design of a similar project in Romania or elsewhere. For the manure storage and application systems, sewage treatment plants, biogas investments and tree planting activities communes need to be able to ensure an adequate supply of labor and financial resources.

99. **Analysis of possibilities for marketing manure-based products needed to ensure sustainability of operations:** Although Commune level platforms are being effectively used, the mayors indicated that their operation and maintenance cost are becoming a concern. Further analysis is necessary on manure processing and compost marketing systems, as well as potential buyers (local, regional, etc.) in order to facilitate the creation of self-sustaining operations in communes with installed platforms. Identification of required machinery for shredding, packing, producing pellets (as well as potentially for biogas and other uses) should be done when the initial platform investments are planned. In future, it will be important to consider different options for ensuring maintenance and cost recovery.

100. **Effective incorporation of incentives for communes and farmers to access EU funds, subsidies and other sources of finance:** The links to opportunities for farmers to access subsidies, and EU financing through different funds (i.e. European Agricultural Fund for Rural Development Growth Programme and other agriculture, rural development, commune development funds, etc.) should be made explicit and communicated to farmers alongside planned communication efforts. This would help to further incentivize behavior change and create conditions for longer term compliance with EU Nitrate and other water Directives.

Monitoring and Evaluation:

101. **Nutrient reduction evaluation:** While it is desirable to measure the Project's impact on groundwater pollutant concentration, the short project duration and other factors that influence groundwater quality make such monitoring difficult. Groundwater quality monitoring is a long-term activity that the project may support initially but should become a core on-going activity of the government's water quality monitoring program with budgetary commitments for recurrent costs. Specific to Romania, there is a need to increase the number of piezometers (to reach the level of EU27) in order to meet requirements under the EU Nitrates Directive.

102. **Future communication should target women and at-risk communities (i.e. Roma) and include output-based indicators:** In monitoring progress on communication, indicators should be related to observed behavior change (i.e. percent of farmers who have adopted improved techniques; percent of rural households who have connected to/use tap water instead of wells). A future campaign should include explicit activities targeting women as well as Roma communities in and adjacent to participating Communes.

Capacity building:

103. **Build capacity for all relevant institutions:** In the Project, it proved effective to target and support ANAR as the agency responsible for water quality monitoring with capacity building

activities under Component II. However, it was observed that to varying degrees, all relevant institutions (i.e. the Agencies for Environmental Protection, Public Health and Veterinary Services) involved in manure management, livestock, water quality monitoring (primarily focused on nitrates) need to be engaged in a Project's capacity building activities. It was also observed that effective engagement of Government agencies can be facilitated through a formalized partnership; this worked well in the case of APIA.

Communications strategy:

104. **A successful communications strategy involves using a mix of media catering to various project stakeholders throughout the lifetime of the project:** Nation-wide outreach through national-level media outlets and social media (Facebook, Twitter, YouTube, etc.) to the broader public for the purposes of education on the health hazards associated with nitrate pollution in water, and face-to-face activities at the commune level involving farmers, individual households and school classes. When promoting a particular issue on the national level, a successful nation-wide campaign often has much larger reach than the initially targeted social media channels and national media networks. Once the issue discussed creates social media waves and is picked up by one major news channel, the copy-cat effect ensures that the other media networks follow suit.

105. **Farmers should be the main target audience**: In Romania, the foundation has been laid country-wide with broad-spread social media, TV and radio campaigns, with a shift after the mid-term review (March 2011) towards a focus on complementary local efforts at schools and with farmers in target communes. The focus moving forward should continue to be at the local level with farmers and their communities in new participant communes, along with updates for already-participating communes and farmers. Demonstration through public events such as water testing at household and public wells to display nitrate concentration have been shown to be extremely effective visual tools.

Technical Aspects of Investments and Procurement:

106. **Attention to technical and location aspects of manure platform investments**: In order to ensure that the manure platforms are effective, they should be sited as close as possible to the inhabited area (ensuring that there is a greater than 500m distance from inhabited buildings according to environmental regulations). Where it is not possible to have the investment close to the inhabited area, plans, provisions and/or funds for transporting manure to storage location outside of the commune (with cooperation from neighbouring communes) are necessary for system functionality and sustainability.

107. **Simplifying and speeding up platform investment preparation:** In order to streamline the investment planning and procurement, a menu of three to five prototype platforms styles (with different dimensions and/or capacities according to permit scheme requirements) could be presented, and then the chosen model adjusted to fit the commune needs and context.

108. Additional lessons can be found in Annex 11.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

(b) Cofinanciers

(c) Other partners and stakeholders
(e.g. NGOs/private sector/civil society)

N/A

Annex 1. Project Costs and Financing

(a) Project Cost by Component

Romania Integrated Nutrient Pollution Control Project - P093775			
Components	**Appraisal Estimate (EUR millions)**	**Actual/Latest Estimate (EUR millions)**	**Percentage of Appraisal**
1. Commune-based Investments in NVZs	39.413	40.509	102.7
2.Policy & Regulatory Framework and Institution Strengthening & Capacity Building	3.884	3.814	98.19
3. Public Awareness & Replication Strategy	2.481	2.280	91.89
4. Project Management	4.221	3.396	80.45
Total Baseline Cost	50	50	100
Physical Contingencies	0.00		
Price Contingencies	0.00		
Total Project Costs	50	50	100
PPF	0.00		
Front-end fee IBRD	0.00		
Total Financing Required	**50**	50	100
GEF Romania Integrated Nutrient Pollution Control Project - P099528			
Components	**Appraisal Estimate (USD millions)**	**Actual/Latest Estimate (USD millions)**	**Percentage of Appraisal**
1. Commune-based Investments in NVZs	2.06	3.392	164
2.Policy & Regulatory Framework and Institution Strengthening & Capacity Building	2.74	1.624	59.2
3. Public Awareness & Replication Strategy	0.15	0.19	126
4. Project Management	0.55	0.28	50.9
Total Baseline Cost	5.5	5.5	100
Physical Contingencies	0.00		
Price Contingencies	0.00		
Total Project Costs	5.5	5.5	100
PPF	0.00		
Front-end fee IBRD	0.00		
Total Financing Required	5.5	5.5	100

(b) Financing

P093775 - Romania Integrated Nutrient Pollution Control Project				
Source of Funds	**Type of Financing**	**Appraisal Estimate (USD millions)**	**Actual/Latest Estimate (USD millions)**	**Percentage of Appraisal**
Borrowing Agency		1.10	0.00	100
Borrower		0.00	0.00	100
Local Communities		4.80	4.80	100
International Bank for Reconstruction and Development	Loan	68.10	68.10	100
Local Govts. (Prov., District, City) of Borrowing Country		2.10	2.10	100

P099528 - GEF Romania Integrated Nutrient Pollution Control Project				
Source of Funds	**Type of Financing**	**Appraisal Estimate (USD millions)**	**Actual/Latest Estimate (USD millions)**	**Percentage of Appraisal**
Borrower	-	0.00	0.00	100
GLOBAL ENVIRONMENT - Associated IBRD Fund	Loan	68.10	68.10	100
Global Environment Facility (GEF)	Grant	5.50	5.50	100

Annex 2. Outputs by Component

Component I. Commune-based investments in Nitrate Vulnerable Zones (NVZs)

I. Communal storage and handling systems to promote better management of livestock and household waste

1. This sub-component provided financing for improved livestock and household waste storage facilities at commune and household level and equipment for waste collection and field application of manure in the NVZ selected communes.

a) Manure storage and management systems.

2. **61 communal platforms are operational, 6 under contract and 20 communal platforms are going to be built in 2015.** Initially, the investment program (at project preparation, year 2006) for commune level manure management included the construction of 99 platforms distributed as follows: 24 platforms in 11 communes designated as Training and Demonstration Sites and 75 platforms in NVZ communes. After project restructuring, the total number of commune platforms was reduced from 86to 67 due to a combination of factors, such as the increased cost of materials and equipment as compared with these costs at project preparation, the lack of appropriate sites in term of land property, minimum distance from the inhabited areas, natural reserve areas or watercourses, lack of access roads, difficulties in obtaining construction permits, inter alia. To date, 63communal manure platforms were constructed in 56 localities with a total storage capacity. In addition, an additional 6 commune platforms have been contracted and are in different stages of construction. Due to the savings made in the construction of the previous platforms (the contracted values were lower than the estimated budget), in 2014, an additional number of 20 new localities have been selected to be included in the Project. This will raise the number of the commune manure platforms that will be built within the project to a total of 87 platforms, meeting the initial project target.

3. **1,136 individual platforms built and 2,837 waste bins delivered to households.** At household level, the project financed a total of 1,136 individual platforms out of the 1350 approved through the Feasibility Studies. The difference of 214 individual platforms could not be built because the farmers that initially requested them are no longer keeping livestock. To help farmers segregate the waste, 2,837 plastic bins for household waste were provided to farmers and a contract for delivering further 1,177 plastic bins is on-going. The bins provided by the project for waste segregation at household level helped the communes to have an improved system of garbage collection. The adoption rate of a garbage collection system improved especially in the communes that benefited from investments during the Project, which all have an improved system of waste collection. The livestock manure collection and storage facilities had the greatest impact on behavioral changes in the communities, mayors as well as county officials, improving manure management. The percentage of population in the project area adopting improved waste management practices to reduce nutrient discharges reached 45 percent in 2014 as compared to 23 percent in 2012 and the baseline of 3 percent in 2008, it already meets the end-of-project target of 45 percent, and the number will continue to increase, as it is expected that in the next years a higher number of farmers with livestock will use the provided manure storage facilities.

4. **Manure management equipment.** The project has supplied 56 sets of equipment comprising 56 frontal loaders, 62 tractors, 124 trailers, 56 vacuum tankers, 56 manure spreaders for the communes where the platforms were built, in order to establish an efficient system for manure collection and management at local level.

b) Planting of Buffer Strips and Pastures' Rehabilitation

5. **182 ha in 57 localities already planted.** This sub-component supported the planting of trees as vegetative buffers where water bodies require protection from nutrient discharges and on communal land affected by erosion and not suitable for grazing, as well as the rehabilitation of small areas of communal pasture land when requested by the commune. Although, in the pilot APCP project in Calarasi tree planting was a very successful component, in the INPC Project this intervention had limited success, mainly because of changes in regulations regarding the status of afforested land and the lack of cadaster showing the clear legal status of the land in many of the communes included in the Project. Many of the communes proposed for planting areas declared as degraded land which were not so because, according to Romanian regulations, to be considered degraded a piece of land should have lost entirely and permanently its production capacity, and that was not the case. According to specific regulations, afforestation or reforestation of degraded land represent investments with a special procedure for defining the areas by the beneficiaries and preparing a technical-economical documentation specific to investment projects (Feasibility Study, Technical Design, etc.). Taking into account that within the Project tree planting was included as a demonstration activity to be implemented jointly by the PMU and the communes (the Project is providing saplings and technical assistance and the communes are providing planting and maintenance works), planting trees as an investment where all costs are supported by the project for a period of at least five years makes no sense for demonstration purposes and could not be included on the Project's investment list.

6. There have been relatively few requests for saplings to be planted by the beneficiary communes, many of them giving up during the bidding process, because of problems with the legal status of the land. On the other hand, the reluctance of the communes can be explained by the fact that agricultural land, including pastures, receives state subsidies. This way there is not much interest in changing the status of the land to be included in forestry, while according to regulations any afforested surface above 0.25 ha is categorized as a forest and thus must be included in the national forestry fund. However, a significant number of NVZ communes participated in tree planting activities and thus the demonstration purpose of the project was achieved. The area planted with trees reached 182 ha in 57 communes, while the initial request of the communes was of 609 ha and the target at project preparation of 1,320 ha. Because the tree planting activities are continuing in the spring of 2015, it is expected that the total area planted with trees will reach about 242 ha. The demonstration of rehabilitation of small areas of communal pastures is included into ongoing demonstration program. It is envisaged that about 220 ha of identified pastures in 11 communes will be rehabilitated.

c) Investments in water and sewage systems

7. **7 sewage systems completed and handed over to mayors, 2 sewerage systems and wastewater treatment plants under contract.** As agreed at Project restructuring, the Project is supposed to finance the construction of 10-12 waste-water investments in communes/villages in which also investments in improved livestock manure management systems are made. Based on clear selection criteria, 12 waste-water investments were selected from a list of 40 communes. However, only ten communes were able to submit the technical documentation to the PMU in due time for bidding the investments. To date, out of nine waste-water investments contracted, seven were completed and two are in the final stage of construction. Because of the technical requirement that the water sewage system may be operated only when enough households are connected so that the wastewater flow reaches at least 30 percent of the capacity of the wastewater treatment plant, by now, five investments are operational. As soon as the number of connections will provide the minimum wastewater flow for proper functioning of the treatment plants the other completed investments will start to operate. As compared with the end-project target of 30 percent of the households in targeted villages with access to the sewerage system with appropriate treatment, the

actual status of connections is as follows: Gratia commune – 27.7 percent, Petin Village, Paulesti commune – 25 percent, Amati-Ruseni-Hrip – Paulesti commune – 25.8 percent, Strejnicu village, Targsoru Vechi commune – 40 percent and Salacea &Otomani, Salacea commune – 15.8 percent. The average number of the connected people at this moment under the project is 14.9 percent (taking into consideration the all nine sewerage investments). A special case are the investments for "Domestic sewerage network in Bontida village (partly), Bontida commune, Cluj county" and "Domestic sewerage network in Rascruci village, Bontida commune, Cluj county" (amount 13,448,662.45 lei, including VAT). These two investments were rebidded because of changes in the initial design requested by the beneficiary commune in order to use an existing treatment plant that will result in lower operating costs. The contract, awarded in November 2015, could not be signed because the delegated financial controller (DFC) delayed its visa until end February 2015. The Contractor now refuses to accept to complete the works within the remaining seven months until the Project closing date. There were visible improvements in sanitation at village level and general hygiene of the villages. This is consistent with the decreasing number of cases of blue baby disease (*methaemoglobinaemia*). According to the last report issued by the National Institute of Public Health, in 2013, the number of blue baby disease cases decreased from 77 in 2009 to 63 in 2013 in the counties where INPC Project had interventions.

d) Promotion of the Code of Good Agricultural Practices

8. **Agriculture specialists trained on The Code of Good Agricultural Practices to advise farmers to comply with Nitrate Directive**. The project promoted the adoption by farmers of the Code of Good Agricultural Practices which has been prepared and updated under the APC Project. The Code was promoted directly to farmers through the Public Awareness activities carried out at local level and also through the training provided to 401 specialists from MEWF, MARD, ANAR, Environmental Guard, County Pedological and Agrochemistry Offices and Environmental Protection Agency that are involved in the Nitrate Directive implementation. At the local level, the project provided training to 333 farmers from 11 TDS communes. A revised edition of the Code of Good Agricultural Practices that was prepared in 2014 within the INPC Project is now in the process of approval by MARD and MEWF. Based on the request received from MARD, funds are provided in the project for printing about 10,000 copies to be distributed through the County Agricultural Directorates, the County Agricultural Chambers and the *Agency* for *Payments* and Interventions in Agriculture. The envisaged beneficiaries are County Pedological and Agrochemistry Offices, Authorities of the Public Administrations (mayoralties), farmers and other interested institutions. In addition, an agricultural demonstration program including nutrient management plans, tree planting and pastures rehabilitation is currently implemented in 12 TDS communes. However, to inform the small and individual farmers about the good agro-environment conditions which they should observe in order to receive subventions from EU funds through the Agency for Payments and Intervention in Agriculture, more efforts are necessary in the next period. Starting from 2015, this became compulsory for receiving such subventions from the EU.

e) Demonstrate the feasibility of biogas from manure/organic household waste through anaerobic digestion and energy co-generation in one commune.

9. **The pilot biogas is under construction**. The pilot biogas plant is built in the Southern part of Seini locality, Maramures County. The main purpose of this investment is the construction of a facility that will demonstrate the feasibility of manure and organic household waste use for the production of biogas and of electricity and heat from biogas, using a cogeneration unit (CHP – combined heat and power). According to the Feasibility Study and Technical Design, it is estimated that the biogas plant will use each year the following materials and waste quantities: manure from pig farms – 5000 tons, manure from cattle farms – 8000 tons, manure from poultry farms – 5000 tons and vegetal silage (energy crops) – 2000 tons. The biogas amount produced by the plant is estimated at 1.5 million m^3/year, which will allow the production of approx. 1,300,000 kWh/year

electricity that will be delivered to the national grid. The plant will operate continuously, 24 hours a day, with a global operation of 8,100 hours/year. The construction works started on February 25, 2015 and it is expected to be completed before March 31, 2016; the regular operational tests will continue until end of June 2016.

Component II. Institutional Strengthening and Capacity Building

10. **Training of Nitrates Directive working groups.** The Project supported the implementation of a comprehensive training program for staff of relevant national, regional and county level agencies that are members to the Nitrates Directive Working Groups. 401 specialists from MEWF, MARD, ANAR, Environmental Guard, County Pedological and Agrochemistry Offices and Environmental Protection Agency that are involved in the Nitrate Directive implementation were trained under the project.

11. **Training of ANAR technical staff.** Training courses were organized for: total organic carbon - TOC analysis (15 specialists), molecular absorption spectroscopy – UV-VIS (42 specialists), geographic information systems – ArcGIS (39 specialists), implementation of the Nitrates Directive at county level (51 specialists), sampling procedures for technicians (41 specialists), analysis of nutrients and metals in sediments and water suspensions (32 specialists), specific analysis for phytoplankton, phytobenthos and macrozoobenthos (41 specialists), standards and methodologies (41 specialists).

12. **Extension of the Voina Training Centre and laboratory equipment.** The construction of a fully operational ANAR training center (Voina Training Centre) and laboratory equipment was completed in October 2012 and handed over to ANAR in May 2013. The national underground water monitoring network was extended with 63 new piezometer sites, which were added to ANAR's facilities for water quality monitoring. Water quality monitoring manuals were prepared, including maps showcasing nitrates concentrations trends in surface and groundwater.

13. **Support for a new version of the Code of Good Agricultural Practices.** The Project has continuously supported the activity of the Nitrates Committee; one major contribution was to support the Nitrates Committee by preparing a new version of the Code of Good Agricultural Practices. This was a revised and updated version of the old Code of Good Agricultural Practices (2005) that was developed within the Agricultural Pollution Control Project.

14. **Monitoring of water pollution with nutrients and eutrophication.** Maps showing nitrates concentration trends in surface and groundwater and water quality monitoring manuals were prepared.

15. **Extending the national underground water monitoring network**. 63 new piezometer sites were added to ANAR's facilities for water quality monitoring.

Component III. Public Awareness and Replication Strategy

16. The project has been very active and effective in its public awareness activities. Several types of events are organized at National, river basin and community levels to reach different target audiences from relevant national level policy making and regulatory representatives to local authorities, farmers to school children. In particular, this component promotes improved rural

sanitation in the rural areas, implementation of good agricultural practices, such as composting, conservation tillage, crop rotation etc.

17. The public awareness program comprises

- A national public awareness program – implemented between 2009-2012;
- A river basin level public awareness program–implemented between 2012-2014;
- Dissemination of the Project's benefits at national level – 2014-2015 (at the end of the project) in order to replicate the project interventions in other similar areas within Romania.

18. The awareness program aimed at informing people about the connection between human activities, habits and environmental pollution with nutrients, especially the pollution of water resources. Meetings with people, discussions and practical demonstrations were held, including testing for nitrate in water using field test kits, sanitary inspection of wells, promoting good practices for storage and handling of manure. These actions resulted in an improvement of the people's knowledge and awareness concerning the causal link between their behavior, daily practices and water contamination up to a level that may pose a risk to human health.

19. So far, during the public awareness program the following activities were already implemented: 14 regional workshops - 1260 participants; 174 seminars at community level - 5640 participants; 87 training of trainers - 1327 participants; 104 seminars in schools - 6500 participants. The target groups of the above mentioned events were: professionals and organizations with responsibilities in environmental issues at regional level; farmers; individual householders; local authorities; community leaders; children in 87 localities included in the project.

20. All participants received informational and promotional materials developed under the project; over 220,500 printed materials were produced, including several types of brochures, leaflets, flyers, folders, posters. All the events were sustained by a complex media and internet awareness program. So far, the following activities were implemented:

- **Online:** project website and blog, accounts on Facebook, My Space, You Tube, LinkedIn; 668 articles published on social networks;
- **Press:** 200 press releases and 30 press conferences; 1227 articles published in national and local press of which 99 percent positive;
- **Radio & TV:** 95 radio and TV broadcastings; 3294 radio spots accompanied the various events; 12 dedicated TV shows "Between Water and Life".

21. The good progress in achieving the project's objectives is illustrated by the results of the Social Surveys undertaken in 2012 and 2014, which revealed that: (i) the percentage of population in the project area adopting preventive and remedial measures to reduce nutrient discharges is 52.6 percent as compared to the baseline of 3 percent and the end-project target of 50 percent, (ii) the percentage of cropped area in the project communes under relevant nutrient reduction measures is 32.75 percent as compared with the baseline of 9 percent and the end-project target of 30 percent, (iii) Increased awareness of linkages between local actions and impact on Black Sea and Danube River water quality.

Component IV. Project Management

22. Currently, the PMU is staffed with competent staff and consultants that work closely with MEWF and relevant stakeholders. The PMU is an integral part of the Ministry's organization chart and all the PMU activities are coordinated and supervised by a designated (Deputy) Secretary

General who is also the first budgetary holder and INPC Project Coordinator. The PMU staff comprises 15 persons: Director (1); Financial Manager – vacant position (1); Economist (2); Procurement Specialist (3); Monitoring and evaluation Specialist (3); Legal adviser (1); Translator (1); Driver (3) – one position vacant. Although after re-staffing of the PMU in 2011, the procurement process improved, delays in contract signing due to cumbersome internal clearances have adversely affected implementation progress and led to a need for a new extension of the Project implementation period.

Annex 3. Economic and Financial Analysis

1. The project achieved clear benefits in addressing key elements in nutrient pollution of the Black Sea from poor agricultural practices in the Romanian catchments that drain into the Danube River. With proper management of manure and its use as fertilizer, on average 70 percent of nutrients (N, P, K) contained in the composted manure are taken up by crops with a direct benefit for farmers as the monetary value of fertilizers and increase in crop yields. Also, the adverse social and environmental impacts from nutrients pollution are attenuated. By midterm 62 manure storage platforms with equipment to handle the manure have been completed. 9 lower-cost sewage systems have been financed. Project investment cost stayed within the limits established in the feasibility study. The Second Mid-Term Survey (2015) reported that in the communes covered by the project financing, manure collection and storage improved by 11.3 percent.

2. Total nutrients diverted from dumping in 2014, in the Project area presented in Table below.

Table. Total nutrients diverted from dumping in 2014

Manure quantity tons	Nutrients, expressed as:		
	N (kg)	P_2O_5 (kg)	K_2O (kg)
59,798	358,788	209,293	298,990

3. It is estimated that in these communities cost effectiveness of the investments in the manure storage platforms with equipment is at about US$33.6 /kg of N. This is within the limits of US$10-40 /kg suggested in the Project Appraisal Document.

4. An Illustrative Cost-Benefit Analysis (CBA) of the investment concluded that taken into account external societal (ecosystem services retaining benefits and global benefits) and health benefits, IRR of the project are estimated in the range from -5 percent to 5 percent. This analysis, however, doesn't include some benefits omitted due to a lack of data (property value and tourism reduction due to nutrient pollution). If total benefits of the project are approximated by the penalties for discharging of nutrients in waters causing pollution over the maximum admissible concentrations, then annual benefits in terms of avoided penalties could elevate IRR up to 13 percent, which is acceptable for private investor. NPV and IRR estimates presented in table below.

Table. NPV and IRR estimates for the mid term

Year	Cost per platform	Direct benefit per platform (price of fertilizers)	Indirect benefit, low				Indirect benefit, high	Total estimated benefits/ no discharge penalty, health low	Total estimated benefits/ no discharge penalty, health high	Benefits-cost/no discharge penalty, low	Benefits-cost/no discharge penalty, high	Benefits-cost, direct benefits and discharge penalty
			Health benefits		Loss of EU credit	Global benefits (prevented N2O emissions)	Shadow price of nitrogen discharges					
			Low	High								
1	336,000									-336,000	-336,000	-336,000
2	22,400	4,278	6,160	27,440	652	13,171	69,159	24,261	45,541	1,861	23,141	51,038
3	22,400	4,278	6,160	27,440	672	13,610	69,159	24,720	46,000	2,320	23,600	51,038
4	22,400	4,278	6,160	27,440	692	14,049	69,159	25,179	46,459	2,779	24,059	51,038

Year	Cost per platform	Direct benefit per platform (price of fertilizers)	Indirect benefit, low				Indirect benefit, high	Total estimated benefits/ no discharge penalty, health low	Total estimated benefits/ no discharge penalty, health high	Benefits-cost/no discharge penalty, low	Benefits-cost/no discharge penalty, high	Benefits-cost, direct benefits and discharge penalty
			Health benefits		Loss of EU credit	Global benefits (prevented N2O emissions)	Shadow price of nitrogen discharges					
			Low	High								
5	22,400	4,278	6,160	27,440	713	14,488	69,159	25,639	46,919	3,239	24,519	51,038
6	22,400	4,278	6,160	27,440	734	14,927	69,159	26,099	47,379	3,699	24,979	51,038
7	22,400	4,278	6,160	27,440	756	15,366	69,159	26,561	47,841	4,161	25,441	51,038
8	22,400	4,278	6,160	27,440	779	16,024	69,159	27,242	48,522	4,842	26,122	51,038
9	22,400	4,278	6,160	27,440	802	16,683	69,159	27,924	49,204	5,524	26,804	51,038
10	22,400	4,278	6,160	27,440	826	17,341	69,159	28,606	49,886	6,206	27,486	51,038
11	134,400	4,278	6,160	27,440	851	18,000	69,159	29,290	50,570	-105,110	-83,830	-60,962
12	22,400	4,278	6,160	27,440	877	18,658	69,159	29,974	51,254	7,574	28,854	51,038
13	22,400	4,278	6,160	27,440	903	19,317	69,159	30,658	51,938	8,258	29,538	51,038
14	22,400	4,278	6,160	27,440	930	19,976	69,159	31,344	52,624	8,944	30,224	51,038
15	22,400	4,278	6,160	27,440	958	20,634	69,159	32,031	53,311	9,631	30,911	51,038
16	22,400	4,278	6,160	27,440	987	21,293	69,159	32,718	53,998	10,318	31,598	51,038
17	22,400	4,278	6,160	27,440	1,016	21,951	69,159	33,406	54,686	11,006	32,286	51,038
18	22,400	4,278	6,160	27,440	1,047	22,610	69,159	34,095	55,375	11,695	32,975	51,038
19	22,400	4,278	6,160	27,440	1,078	23,268	69,159	34,785	56,065	12,385	33,665	51,038
20	22,400	4,278	6,160	27,440	1,111	23,927	69,159	35,476	56,756	13,076	34,356	51,038
21	134,400	4,278	6,160	27,440	1,144	24,585	69,159	36,168	57,448	-98,232	-76,952	-60,962
22	22,400	4,278	6,160	27,440	1,178	25,244	69,159	36,861	58,141	14,461	35,741	51,038
23	22,400	4,278	6,160	27,440	1,214	25,902	69,159	37,554	58,834	15,154	36,434	51,038
24	22,400	4,278	6,160	27,440	1,250	26,561	69,159	38,249	59,529	15,849	37,129	51,038
25	22,400	4,278	6,160	27,440	1,288	27,219	69,159	38,945	60,225	16,545	37,825	51,038
26	22,400	4,278	6,160	27,440	1,326	27,878	69,159	39,643	60,923	17,243	38,523	51,038
27	22,400	4,278	6,160	27,440	1,366	28,536	69,159	40,341	61,621	17,941	39,221	51,038
28	22,400	4,278	6,160	27,440	1,407	29,414	69,159	41,260	62,540	18,860	40,140	51,038
29	22,400	4,278	6,160	27,440	1,449	30,293	69,159	42,180	63,460	19,780	41,060	51,038
30	22,400	4,278	6,160	27,440	1,493	31,171	69,159	43,102	64,382	20,702	41,982	51,038
PV	858,867	79,705	114,758	511,195	17,834	375,132		587,429	983,866	-288,547	96,344	469,399
IRR										-5%	5%	13%

5. Financial sustainability of the project is based on the assumption that operational cost of the manure management platforms and maintenance cost of sewage plants are to be covered by the communes. The Second Mid-Term Survey reports that farmers are not willing to pay for manure management yet. However, they are ready to pay for sewage system the amount comparable with similar per capita costs achieved in wastewater schemes throughout Romania. For manure storage platforms, the government of Romania could internalize some of the external benefits of proper manure management in the form of subsidies to communes or introducing user fee, at least to cover operational cost for each commune. Another approach is to sell compost produced by the manure storage platforms on the market. In view of a necessity to develop an organic farming in Romania, additional marketing research on the cost of bringing compost to this market and market price survey is needed. This study could enhance financial analysis of the project results.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit
Lending		
Blaga Djourdjin	Procurement Specialist	GGODR
Bogdan Constantin Constantinescu	Sr. Financial Management Spec.	GGODR
David A. Bontempo	Operations Analyst	GGODR
David Grayston Smith	Consultant	ECSSD - HIS
Doina Petrescu	Program Leader	AFCC1
Jitendra P. Srivastava	Consultant	GENDR
Karin Shepardson	Program Manager	GCCIA
Lucian Bucur Pop	Senior Economist	GSPDR
Meeta Sehgal	Rural Development Specialist	GFADR
Nadia Badea	Operations Officer	GTIDR
Peter A. Dewees	Adviser	AES - HIS
Rita Klees	Sr. Environmental Spec.	CPF - HIS
Robin Drewett	Consultant	ECSSD - HIS
Varadarajan Atur	Lead Evaluation Officer	IEGPS
Supervision/ICR		
Blaga Djourdjin	Procurement Specialist	GGODR
Bogdan Constantin Constantinescu	Sr. Financial Management Spec.	GGODR
Cesar Niculescu	Environmental Specialist	GENDR
Diomedes Berroa	Lead Specialist	OPSOR
Doina Petrescu	Program Leader	AFCC1
Lucian Bucur Pop	Senior Economist	GSPDR
Richard W. Pollard	Sr. Water & Sanitation Spec.	MNSWA - HIS
Gayane Minasyan	Senior Environmental Economist	GENDR
Gillian Ann Cerbu	Natural Resources Mgmt. Spec.	GENDR
Alexandru Cosmin Buteica	Operations Analyst	GENDR

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD (including travel and consultant costs)
Lending		
FY05	5.44	34,672.91
FY06	34.02	147,296.66
FY07	44.19	197,324.30
FY08	6.63	44,645.88
Total:	**90.28**	**423,939.75**
Supervision/ICR		
FY06		26.96
FY07		35.75
FY08	10.30	50,598.76
FY09	16.48	77,718.78
FY10	23.96	95,292.57
FY11	33.18	113,965.53
FY12	18.31	83,609.90
FY13	16.57	61,960.68
FY14	13.55	42,412.80
FY15	16.08	60,670.22
FY16	13.28	44,008.96
Total:	**161.71**	**630,300.91**

Stage of Project Cycle	Staff Time and Cost (GEF Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY06	5.88	64,830.69
FY07	4.45	68,347.67
FY08	3.88	24,485.80
Total:	**14.21**	**157,664.16**
Supervision/ICR		
FY08	5.60	37,915.74
FY09	6.60	45,650.27
FY10	7.09	63,961.05
FY11	5.70	56,982.31
FY12	8.40	48,851.58
FY13	7.64	27,566.14
FY14	9.23	25,730.10
Total:	**50.26**	**306,657.19**

Annex 5. Beneficiary Survey Results

1. The survey data show some significant impacts of the Integrated Nutrient Pollution Control Project for the period 2008 – 2014. For the final evaluation, the survey should examine the degree to which these trends continue. This future survey would be able to truly reflect the impact and outcomes of the project with regards to reducing nutrient pollution.

2. Based on the survey data we can infer that the Project had the following impacts:

- **The situation of the 4 groups of communes participating in the survey in 2014 was viewed as having been improved compared to the situation in 2008[9]:** The overall socio-economic conditions were seen to have improved, through the changes in the structure of the population, number of animals and the types of agricultural land use. This is reflected in the decrease in average age of household heads, an increase in their level of education and an increase in their net income. A negative trend in the ownership of large animals and a positive trend in raising smaller animals, especially in the case of agricultural companies, was observed. It remains to be seen if the end-of-project evaluation will confirm these trends.
- **There was an increase in the availability of clean water, access to the sewerage network and garbage collection systems:** The changes in the water supply system show that, in the six years, the number of communes which implemented this system increased so that almost all communes surveyed (from 7 to 10 in each surveyed group) benefit from the water supply.
- **The improved waste collection system has had the greatest impact among survey respondents,** among the infrastructure improvements supported by the project. Its implementation increased across all of the 43 communes from the surveyed sample, from 27 communes in 2008, to 39 in 2012 and finally to 40 in 2014. Improved household waste management in the form of using waste bins and separating organic from non-organic waste, was adopted by over 50 percent of respondents. The existence of problems related to waste/manure is very reduced, of 13-15 percent of the households in each group of communes.
- **The highest values of improved waste management adoption were recorded in the treatment group communes**, by both households and agricultural companies, pointing to the direct impact of participation in the project on behavior change in this population. Based on these preliminary figures, it is likely that the Project's extension and scale up could lead to an even higher adoption rates, as seen over the span of 2008-2014 in the treatment group communes. Overall survey results (for all communes) showed improved waste management system adoption rates were higher among agricultural companies than among individual households. Based on these preliminary findings, future information campaigns and financial support should focus more on households.
- **The population surveyed improved their knowledge and awareness of the pollution effects of improper waste management and storage.** Overall the data from 2008, 2012 and 2014 surveys show an increase in the population's awareness of the polluting effects of improper agricultural practices on the local environment but that the population is less informed about the polluting effects of improper agricultural practices on the national scale, as with the Danube River Basin and Black Sea.

[9] There were four groups made up of 43 participating communes.

- **The Information and Public Awareness Campaign carried out from 2012 to 2014 increased awareness in 32 percent of the target population surveyed in 2014,** according to the impact evaluation carried out based on the model of Moriarty's Domains. Within this population, the proportion of those determined to act (implement nutrient reduction measures) was approximately 17 percent, or 7 percent of the total households in the area.
- **The participation rates in activities of planting of vegetative buffer strips and training on the Code of Good Agricultural Practices was somewhat low but the participants' level of satisfaction with these activities was quite high.** Additionally, findings from the impact evaluation noted that there was a high level of participation in awareness campaign activities in schools on the part of children and parents, as well as training programs on the Code of Good Agriculture Practices. High rates of usage were reported for equipment provided under the Project (e.g., front loaders, tractors, and eurobins) among beneficiaries, reaching 100 percent in some communes.

Annex 6. Stakeholder Workshop Report and Results

1. Throughout the duration of the project, several meetings with stakeholders were organized (workshops, local seminars, training of trainers, etc.). The meetings were a valuable opportunity for beneficiaries and stakeholders to share their project experience. Participants described how they benefitted from the project, what challenges they faced and directions forward.

2. Workshops were organized at river basin and regional level (Ploiesti, Bucharest, Timisoara, Craiova, Cluj, Oradea, Piatra Neamt and Iasi) and were customized for institutional stakeholders, such as: Water Directorates, API, EPA, SGA, local authorities, county councils, local councils, politicians, as well as for mass media, NGOs, academic institutions, experts etc. The events included debates on several topics, such as: (i) INPCP description and next steps; (ii) correlation of the legislation regarding nutrients, as promoted by different ministries: MARD, MEWF, MoH, MRDPA; (iii) issues related to the promotion of the "Code of good agricultural practices"; (iv) involvement of local authorities in the implementation of practices and procedures for the integrated control of nutrient pollution; (v) pollution of water and soil, including pollution sources, effects and wastewater technologies; (vi) elements of hygiene and protection of water sources for rural population.

3. Local seminars (commune level) were also organized, dedicated to the primary stakeholders: individual farmers, farming associations, local public officials and community leaders, non-farming communities. The role of these meetings was to inform and educate the population about habits that have led to the pollution of water sources. The participants were informed by the experts about efficient ways to reduce local nutrient pollution, such as: storage of farm manure on concrete platforms; positioning latrines away from the wells; appropriate construction of wells and water protection; use of natural fertilizers and manure for crops only during optimal and compliance periods required by law; practicing crop rotation and successive crops; measures of sanitation in households.

4. Another type of event organized was the training of trainers seminars, dedicated to professional stakeholders, namely: schools and educational environments, doctors, physicians, veterinarians, priests, etc. The objective of these meetings was to create a group of local promoters able to raise awareness and train other people from their communities. The selection of the group of promoters was based on the principle that through their professions (teachers, doctors, priests etc), they can help with their personal experience in training others, determining behavioral changes and generate a positive attitude in their relationship with the environment.

5. Some of the key issues raised included:

- The fact that the project proposed only one solution for manure collecting and storage in the form of a 2000t capacity rectangular platform, plus a set of equipment: a frontal loader, an agricultural equiped tractor, agricultural trailers, a vacuum tanker, a manure spreader. Some beneficiaries considered that other

solutions to build storage facilities and other types of equipment should be taken into account. Several suggestions were collected:

  - Instead of a single platform located in the central area of the commune, several smaller platforms near the villages should be built in order to minimize distances/transport costs.
  - The use of roofed platforms would remove the problem of rain water management.
  - Support for an extended range of equipment to better serve the manure collection and management. Although the frontal loader is needed and useful for activities on the platform, it is not the most appropriate for manure collecting from individual households; a more suitable equipment for this activity would be a gripper equipped tractor.
  - Composting, sacking or pelleting installations should be added to the storage facilities for a better capitalization of compost.

- An increase of ANAR's EU reporting capacity is required, not only with regards to the Nitrate Directive, but also for the Water Framework Directive which encompasses the Nitrate Directive. Specific reporting programmes and databases are needed.
- Before promoting an investment for the reduction of nutrient pollution it would be useful to perform some simulations regarding the underground and surface waters behaviour, by considering the position of the investment and its technical characteristics. This implies increasing ANAR's capacity for modelling pollutants movement in underground waters.
- The national piezometer network for monitoring the quality of underground waters was affected by the wearing out or decay of some of the piezometers. This is why there are some unaccounted areas where new piezometers should be built so as to complete the monitoring network.
- The awareness campaigns had very good results but these should be continued after the Project's completion in order to consolidate the behavioural changes aimed at the protection of waters against pollution.

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

There were no comments received.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

There were no comments received.

Annex 9. List of Supporting Documents

1. Integrated Nutrient Pollution Control Project PAD. October 3, 2007.
2. Restructuring Paper for Integrated Nutrient Pollution Control Project. July 5, 2012.
3. Restructuring Paper for Integrated Nutrient Pollution Control Project. August 5, 2013.
4. Project Management Unit “Integrated Nutrients Pollution Control” Project Reports 1-20. Government of Romania, Ministry of Environment and Climate Change.
5. Aide Memoires, Romania Integrated Nutrient Pollution Control Project 2008 – 2015
6. Implementation Status & Results Report, Romania Integrated Nutrient Pollution Control Project (P093775) sequence #1 - Archived 02/15/2008 to sequence #12-Archived 12/18/2014, World Bank.
7. Srivastava, J. P. (23-28.02.2015). Romania Integrated Nutrient Pollution Control Project, Independent Assessment Report.

Annex 10. Reallocation of Loan and Grant Proceeds details

1. *July 30, 2015 (3rd Project Restructuring):* The reallocation of Loan and Grant proceeds among the Project's components is proposed at the request of the Ministry of Public Finance expressed through letters of April 7, 2015, and July 30, 2015. This is the second Loan and Grant proceeds reallocation after the one approved within the first Project restructuring in July 2012.

2. Loan proceeds reallocation from Component 1 to Component 2: (i) The amount of EUR 449,713.20 was reallocated from the category "Goods, Works, Consultants' Services and Training" under "Component 1 – Commune-based investments in Nitrate Vulnerable Zones" to the category "Goods, Works, Consultants' Services and Training" under "Component 2 – Institutional Strengthening and Capacity Building". This amount was intended to be used for continuing the support to the National Water Administration "Apele Romane" (ANAR) through the endowment of modern equipment for water quality/quantity data collection, as well as to support the Agency of Payments and Interventions in Agriculture and other institutions involved in the implementation of the EU Nitrates directive, mainly to increase the interactions among these institutions, to increase the control and inspection in the territory, training and consultancy services.

3. *July 30, 2015:* Loan proceeds reallocation from Component 1 to Component 2: (ii) the amount of EUR 327,446.98 was reallocated from the category "Goods, Works, Consultants' Services and Training" under "Component 1 – Commune-based investments in Nitrate Vulnerable Zones" to the category "Goods, Works, Consultants' Services and Training" under "Component 3 – Public Awareness and Replication strategy". This amount has been designated to be used for continuing and developing efficient and effective information and public awareness campaigns related to the promotion of environmentally-friendly agricultural practices in small- and medium-sized farms to reduce nutrient pollution. In addition, farmers and local public authorities will receive support and assistance regarding accessing the EU funds available for conforming to the Nitrate Directive's requirements.

4. *July 30, 2015:* Loan proceeds reallocation from Component 1 to Component 4: (iii) the amount of EUR 766,546.72 was reallocated from the category "Goods, Works, Consultants' Services and Training" under "Component 1 – Commune-based investments in Nitrate Vulnerable Zones" to the category "Goods, Works, Consultants' Services and Training" under "Component 4 – Project Management". This amount will be used for project management and implementation costs during the extension period, and for carrying out a new activity (new study) for evaluation and quantification of the Project's efficiency by the end of the implementation period.

5. An amount of EUR 1,543,706.90 reallocated from the category "Goods, Works, Consultants' Services and Training" under Component I represents savings accrued during implementation through the construction of platforms for manure storage, procurement of machinery operating sets, as well as construction of sanitation systems. The local market and competition for several of these investments resulted in lower contracted prices than the original estimates. The financing percentage of expenditures to be financed from the Loan in each category will remain the same.

6. *July 30, 2015 (3rd Project Restructuring):* Grant proceeds reallocation from Component 2 to Component 1: (i) An amount of USD 296,373.26 was reallocated from the category "Goods, Works, Consultants' Services and Training" under "Component 2– Institutional Strengthening and Capacity Building" to the category "Goods, Works, Consultants' Services and Training" under "Component 1– Commune-based investments in Nitrate Vulnerable Zones". This amount will be used after the completion of the biogas investment for a demonstration program about the feasibility

of biogas and energy co-generation from manure/organic household waste through anaerobic digestion that will be delivered to the interested farmers.

7. *July 30, 2015 (3rd Project Restructuring):* (ii) An amount of USD 69,193.22 was reallocated from the category "Goods, Works, Consultants' Services and Training" under "Component 4 of the Project – Project Management" to the category "Goods, Works, Consultants' Services and Training" under "Part III (Component 3) of the Project – Public Awareness and Replication strategy". This amount will be used for the public communication and information actions at national and regional levels.

Annex 11. Lessons Learned

1. Project experience highlighted the following additional factors for successful and timely implementation:

Pasture rehabilitation and afforestation:

2. **Selection of areas for pasture rehabilitation and afforestation**: Pasture rehabilitation under Component I did not contribute significantly to the fulfilment of project goals (due to legal status of the land, problems faced by land use change and disincentives making it difficult for the project to operate on lands best situated to reduce nitrate pollution around water bodies). For example, on March 11, 2014, two parcels of land around the water bodies were refused to be allocated for tree/shrub planting, as they were considered agricultural land and not permanently degraded. Therefore this land could not be included for tree planting (under Forestry Code – Codul Silvic). This situation was not envisaged during project preparation and would need to be addressed in future projects. . The current land use policy needs to be reviewed in view the current limitations and a solution should be found to develop buffer zones around water bodies as required under EU Water framework and Nitrates Directive. Sapling availability needs to be properly planned for in order to ensure that the appropriate species and age mix are available for the planned area.

3. **Availability of resources for the establishment and maintenance of plantations**: As part of Romania's efforts to reform, there was a hiring freeze which affected the ability of the Commune to hire additional staff to plant trees and maintain newly-established plantations under the Project. Careful analysis of the availability of financial and human resources to establish and maintain plantations according to project targets needs to be undertaken in order to generate realistic targets for planted area under a future project. Similarly, creative solutions, such as the encouragement of public-private partnerships in order to increase planted area should be undertaken.

Technical Aspects of Investments and Procurement:

4. **Communal platforms should be focus, not individual platforms:** After the mid-term review (March 2011), there was a move towards commune platforms and away from individual manure platforms. The individual platforms were not as effective: they needed to be emptied too frequently, recipients complained that they were not large enough or that they required more of them, they were constructed differently in each village and were difficult to monitor.

5. **Innovative strategies to encourage behavior change required for steep slopes and hilly terrain:** The manure management system (communal platform with machinery and integrated management system) has not been as successful in inciting behavior change in hilly areas, where farmers are continuing to spread manure in a way that does not reduce the nitrate load in ground water. Additional analysis will be needed to explore innovative strategies to catalyze behavior change in hilly areas where access and manure spreading is more difficult.

6. **Integration into local development plans and (planned) connectivity to surrounding infrastructure is essential:** Commune-level platform plans should include plans for connections to the electricity grid, access roads, as well as other infrastructure, and sources of funding for each of these.

7. **Technical aspects of investment preparation (nutrient management plans, preliminary and final designs) for the initial batch of beneficiary enterprises should be**

carried out during Project preparation. If possible, the procurement process (i.e. E.I.A., pre-approval for permits, etc., without actual contract signing) for this first group should also be carried out before project effectiveness. This would allow for additional time for the thorough examination and rectification of any technical or procedural issues and lead to smoother implementation once the Project becomes effective. In addition, to increase ease of monitoring, it was observed that it is easier to monitor progress on investments when dealing with smaller companies to avoid contracting out (sub-contracting).

Annex 12. Loan and Grant Proceed Reallocations

The following is a summary of the reallocation of the loan and grant proceeds among components throughout the Project's lifetime thus far:

Category of Expenditure	Amount of the Loan Allocated (Expressed in EUR)		
Original	**PAD**	**Revised – July 13, 2012**	**Revised August, 2015**
1. Goods, Works, Consultants' Services and Training under Part I of the Project	39,413,200.00	42,052,738.56	40,509,031.66
2. Goods, Works, Consultants' Services and Training under Part II of the Project	3,884,000.00	3,364,489.10	3,814,202.30
3. Goods, Works, Consultants' Services and Training under Part III of the Project	2,481,800.00	1,953,207.40	2,280,654.38
4. Goods, Works, Consultants' Services and Training under Part IV of the Project	4,221,000.00	2,629,564.94	3,396,111.66
TOTAL	50,000,000.00	50,000,000.00	50,000,000.00

Category of Expenditure	Amount of the GEF Grant Allocated (in USD)		
Original	**PAD**	**Revised – July 13, 2012**	**Revised August, 2015**
1. Goods, Works, Consultants' Services and Training under Part I of the Project	2,060,000.00	3,096,234.36	3,392,607.62
2. Goods, Works, Consultants' Services and Training under Part II of the Project	2,740,000.00	1,921,191.43	1,624,818.17
3. Goods, Works, Consultants' Services and Training under Part III of the Project	150,000.00	127,300.00	196,493.22
4. Goods, Works, Consultants' Services and Training under Part IV of the Project	550,000.00	355,274.21	286,080.99
TOTAL	5,500,000.00	5,500,000.00	5,500,000.00

Annex 13: Map ROMANIA: Integrated Nutrient Pollution Control project