	Notes	Connections	Name and type of practice and policy	Category			Description+Implementation	Outcomes	Country/Geography	Representative Project	Total Project Cost	Project Cost
91	Connecticut, NH and NY from "representative project"	92	Finfish and Algal Aquaculture System	A			•A seaweed species was cultivated in aquaculture systems. •The effect on N content in the water was monitored.	•Porphyra species were capable of removing 70 - 100% of N in the water medium, but only 35 - 91% of the P. • The seaweed also has economic benefit for nori consumption by humans.	USA	Critical Technology Program of the State of Connecticut and the National and State Sea Grant College Programs of Connecticut, New Hampshire, and New York and NOAA's National Marine Aquaculture		N/A
92	Should Canada and China projects be described separately? NO	91	Integrated Multi-Trophic Aquaculture (IMTA)	A			•Combining fed aquaculture species (finfish), with inorganic extractive aquaculture species (seaweed), and organic extractive species (suspension- and deposit feeders) in close proximity. • In Canada, species of Atlantic salmon, kelps, and blue mussel are raised together in the Bay of Fundy. • In China, aquaculture on Zhangzidao Island in the northern Yellow Sea, grow shellfish, seaweeds, crustations, and echinoderms. Suspended culture in Sungo Bay, scallop, kelp, abalone, and blue mussel are cultured.	•IMTA techniques have proven themselves in the experimental and pilot sized scales. •In Canada, growth rates of kelp and mussels have been 46 - 50% higher. •While taste test of Mussels grown under these conditions are no different. • Some results have shown a 80% removal of N from a 1500 ton salmon farm. • Some highly controlled experiments show seaweeds removing less than 10 g N/day.	Canada and China	N/A		N/A
93	Should threats addressed be in description or outcomes? DESCRIPTION		Integrated Coastal Management (ICM)	A			•Continuous and dynamic process of planning and managing the coastal area, which employs integrated, holistic, and interactive approaches. •ICM addresses a variety of threats challenging the sustainability of the coastal area, such as fishery resources depletion, habitat loss and degradation, sea-level rise, natural hazards, multiple-use conflicts, pollution, and poverty of coastal communities.	ICM has contributed to the reduction of multiple resource-use conflicts, and risks from pollution and red tide occurrence. Sustained growth in of shipping, fisheries, tourism, and property. The present value of ICM net benefits amounts to $3.3 billion.	Philippines	GEF/UNDP project; Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)		N/A
114			Ceasing aquaculture operations to improve water quality.	A			•Agriculture, mainly aquaculture, around Kolleru Lake resulted in poor water quality. •The government enforced Operation Kolleru to stop all aquaculture in Kolleru Lake.	•Stopping aquaculture activities financially affected people in the area. •In response, the government has designed packages with subsidized financial allocation.	India	N/A		N/A
118			Seaweed flora and prawn farming interactions	A			•Four seaweed species were grown and tested for biomass accumulation and nitrate and ammonium uptake under controlled conditions. •Water quality enhancement was observed when combining different species of seaweed in close proximity to prawn farming. •The seaweed has the ability to use nitrate and ammonium to manufacture biomass.	•A slight increase in ammonium uptake when compared to nitrate uptake by all species. •Uptake rates ranged from 42 to 137 micro-mol/g of dw/hour for nitrate and 112 to 180 micro-mol/g of dw/hour for ammonium. •A linear relationship between seaweed biomass production and nitrogen uptake. •All seaweed species would be suitable for integration into prawn or fish farming.	India	N/A		N/A
123			Modeling marine ecosystem structure	A			•The amount of nutrient entering into the system and growth rate of phytoplankton play an important in controlling phytoplankton growth. •A mathematical model was developed based on four compartments: nutrient, phytoplankton, zooplankton, and detritus •The model is simulated for two cases: 1) detritus link with the system through remineralization, 2) detritus link with the system through remineralization and palatability of detritus to zooplankton	•This tool will allow us to better understand what effects plankton populations.	India	N/A		N/A

125	Very little info on project		Compliance guide for concentrated aquatic animal production	A			•Assisted concentrated aquatic animal production (CAAP) owners/operators to understand with regulations to help improve farm environmental compatibility.		USA	N/A		N/A
134			Constructing wetlands to remove N from aquaculture wastewater	A	W		Aquaculture produces N. Mechanisms to reduce N are •constructing treatment wetlands •recirculating systems •settling ponds, and •combining aquaculture and agricultural systems.	Constructed wetlands can remove 60 - 80% N from aquaculture wastewater.	N/A	N/A		N/A
251	Should possible models for aquaculture ponds be included in description? YES IF POSSIBLE AND CONNECTED TO THIS SPECIFIC PROJECT		Implementing Aquaculture systems	A			A water impoundment was constructed and managed for farming of freshwater and saltwater organisms including fish, mollusks, crustaceans and aquatic plants Aquaculture ponds may be: •embankment ponds that intercept and store surface runoff water, or •off-channel impoundments or excavated ponds that are filled by pumping ground water, or diverting spring or stream flows.		USA	Conservation Practices		
263	How does this affect nutrient loading? UNLESS WAYS TO CAPTURE AND TREAT NUTRIENTS, THEN NO		Fish Raceway or Tank: constructing tanks with a continuous flow of water for high-density fish production	A	V		•A channel or tank with a continuous flow of water was constructed for high-density fish production. •This standard applies to raceways or tanks that conduct flowing water to produce fish. •Structures can be earthen channels as well as channels and tanks constructed of concrete, concrete block, timber, rock, fiberglass, or other materials.		USA	Conservation Practices		
59			Using biogas digesters to convert animal waste to energy	B	N		•Two small-scale pilot biogas digesters were constructed to convert animal waste to energy. •Nutrients will still have to be transported off site. •292 biogas digesters were built, and several local manufacturers produced locally manufactured models. 100 additional units have been built since project closing	•Animal waste was sustainably managed and desposed of. •A renewable and sustainable energy source was tapped.	Turkey	Anatolia Watershed Rehabilitation Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$45,410,000	
61			Using manure pads and digesters to realize nutrient reduction	B	N		•Manure pads and digesters were used to realize nutrient reduction. •Grants were also made for off-farm storage and innovative manure spreading equipment.		Georgia	Georgia: Agricultural Research, Extension, Training Project (ARET)	$8,250,000	
74			Algal Turf Scrubber Treatment (ATS)	B	U		•Algae survives and grows on the N and P present in dairy manure resulting in the conversion of manure N and P into algal biomass. •Manure effluent is fed into an anaerobic digester to create biogas. •Digested effluent is then loaded into an algal scrubber. •Algae produced as a byproduct could be used in animal feed, compost, and organic fertilizer.	N and P from manure are converted into algal biomass, which can be used as an input in compost and animal feed.	USA	Algal Turf Scrubber Technology for a Hypothetical 1000-cow Dairy		
75	Note that 75-78 contain near identical project info but different locations within the US, however these locations are not included in coutnry/geography WHY NOT? NOTE DIFFERENT GEOGRAPHIES		Algal Turf Scrubber Treatment (ATS)	B	U		•Algal turf is attached onto screens in a shallow trough or basin. Water is pumped through the screen and nutrients are scrubbed from the water via uptake by algae. •Sewage water is pumped over algae for treatment. •Algal biomass has the potential for use in biofuels.	N and P from manure are converted into algal biomass, which can be used as an input in compost and animal feed.	USA	Pilot-scale ATS tertiary wastewater treatment system; Patterson ATS system		N/A

76			Algal Turf Scrubber Treatment (ATS)	B	U		•Algal turf is attached onto screens in a shallow trough or basin. Water is pumped through the screen and nutrients are scrubbed from the water via uptake by algae. •Algae screen was placed in a drainage canal of a sugar farm to scrub flowing canal water. This reduced non-point pollution in the Florida Everglades.	N and P from manure are converted into algal biomass, which can be used as an input in compost and animal feed.	USA	Pilot-scale ATS non-point-source nutrient removal		N/A
77			Algal Turf Scrubber Treatment (ATS)	B	U		•Algal turf is attached onto screens in a shallow trough or basin. Water is pumped through the screen and nutrients are scrubbed from the water via uptake by algae. •Algal turf scrubber (ATS) systems were used to scrub non-point pollution of stormwater north of Lake Okeechobee.	N and P from manure are converted into algal biomass, which can be used as an input in compost and animal feed.	USA	Pilot-scale ATS non-point-source nutrient removal; S-154 unit		N/A
78			Algal Turf Scrubber Treatment (ATS)	B	U		•Algal turf is attached onto screens in a shallow trough or basin. Water is pumped through the screen and nutrients are scrubbed from the water via uptake by algae. •An ATS system cleans the Suwanee River in Florida. The module cleans 11 billion liters per day.	N and P from manure are converted into algal biomass, which can be used as an input in compost and animal feed.	USA	ATS for the Suwanee River in Florida		N/A
81	Is MAPS the same as ATS? PERHAPS. I WOULD MAKE A CALL.		Growing algae for water treatment purposes (Managed Aquatic Plant Systems (MAPS))	B			•Algal turf is attached onto screens in a shallow trough or basin. Water is pumped through the screen and nutrients are scrubbed from the water via uptake by algae. This technology is used in Managed Aquatic Plant Systems (MAPS) •Managed Aquatic Plant Systems were located in areas of the Lake Okeechobee Watershed with high P concentrations.		USA	Long-Term Plan for Achieving Water Quality Goals		$24,200,000
82			Constructing floating mats of vegetation to reduce nutrient concentration of manure before land application.	B			•Floating mats of vegetation were constructed to float on a lagoon of swine manure and grow three different wetland plant species; cattail, soft rush, and maidencane.	•The plants will take up the nutrients in the lagoon and thus reduce the concentration of N and P of the manure before land application is performed.	USA	Floating Mat Study		N/A
97	This is an evaluation of behavior, not a best practice. IT IS A PTRACTICE BUT THE HOW AND WHY SHOULD BE SUMMARIZED IN THE TITLE AND DESCRIPTION		Adopting technologies and changing trends	B			•New technologies were not widely adopted Reasons: •farmers were not consulted before a technology is introduced •Technology delivery was late •Extension services were irregular or absent, •Extension agents were erratic is delivery of advisory service. •For a new technology to be accepted and adopted, high financial return is the major driving force.	•Farmers moved away from cattle grazing and toward crop production.	Uganda	Transboundary Agro-ecosystem Management Programme for the Lower Kagera River Basin		
120			Managing acidic soils	B	J				India	Niche Area of Excellence on Acid Soil Management		$200,000
121			Managing acidic soils	B	I		The impact of bio-fertilizers and bio-inoculants on crop yields and nutrient use efficiencies was evaluated.	•Soil conditions improved •Root growth, root density, and volume increased, as well as root CEC with the application of bio-fertilizers and bio-inoculants	India	N/A		$40,000
198			Poultry House Biofilters	B	M		•Poultry House Biofilters are comprised of poultry housing ventilation systems that pass air through a biofilter media that incorporates a layer of organic material, typically a mixture of compost and wood chips or shreds.	•The filter supports a microbial population and reduces ammonia emissions by oxidizing volatile organic compounds into carbon dioxide, water and inorganic salts.	USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		

220			Using dietary phytase to reduce the amount of supplemental phosphorus used in feed rations, decreasing total P excreted by livestock	B	M		•Dietary phytase describes a suite of enzymes that cleave inorganic phosphorus (P) from organic forms of P in grains (inositol phosphates, also referred to as phytate) to increase grain P availability to animals. •Producers can use dietary phytase to reduce the amount of supplemental P used in feed rations, thereby decreasing the total amount of P fed to animals.	•By decreasing the total amount of P fed, producers also can decrease total P excreted by their livestock, and thus reduce the total amount of P that can potentially be lost to streams and rivers.	USA	Dietary Phytase to Reduce Phosphorus Losses from Animal Manure		
222			Nutrient Inactivation: using chemical precipitants to bind phosphorus into an insoluble form unavailable to algae.	B	O		•Chemical precipitants are used to bind soluble reactive phosphorus (SRP) into an insoluble form that is unavailable to algae and clarify the water column. •Aluminum sulfate (alum) is dispensed in carefully controlled amounts to the affected water body. •The aluminum reacts with the SRP to form aluminum phosphate that is insoluble at pH values between 3 and 9. •Aluminum undergoes hydrolysis to form aluminum hydroxide floc that clarifies the water column and adsorbs additional phosphorus (P). •The aluminum hydroxide precipitate, and floc settle to the bottom of the lake or pond, forming a thin film over the sediment. This thin film decreases P release and recycling from bottom sediments.	•Aluminum hydroxide floc clarifies the water column and adsorbs additional phosphorus (P). • A thin film of aluminum hydroxide percipitate and floc decreases P release and recycling from bottom sediments.	USA	Lake and Pond Treatment by Nutrient Inactiviation		
246	Make link a hyperlink		Agrichemical Handling Facility	B			•A facility with an impervious surface was constructed to provide an environmentally safe area for the handling of on-farm agrichemicals	•The facility provided a safe environment on farm and ranch operations for the storage, mixing, loading and cleanup of agrichemicals, retain incidental spillage, retain leakage, and to reduce pollution to surface water, groundwater, air, and/or soil.	USA	USDA Natural Resource Conservation Service Conservation Practices Index		
250	What does PAM do to irrigated lands susceptible to erosion? PLEASE GET ME A CONTACT AND I WILL MAKE A CALL TO HAVE A BETTER DESCRIPTION Make link a hyperlink		Applying Anionic polyacrylamide (PAM)	B			•Water-soluble Anionic Polyacrylamide (PAM) was applied to irrigated lands susceptible to irrigation-induced erosion where the sodium adsorption ratio (SAR) of irrigation water is less than 15.		USA	USDA Natural Resource Conservation Service Conservation Practices Index		
281	Make link a hyperlink		Vegetative Treatment Area	B			•An area of permanent vegetation is used for agricultural wastewater treatment to improve water quality by reducing loading of nutrients, organics, pathogens, and other contaminants associated with livestock, poultry, and other agricultural operations. •The total treatment area for the Vegetative Treatment Area is based on the soil's capacity to infiltrate and retain runoff within the root zone and the vegetation's agronomic nutrient requirements. •The soil's water holding capacity in the root zone, infiltration rate, permeability, and hydraulic conductivity are used to determine its ability to absorb and retain runoff. •Runoff determination is based on the most restrictive soil layer within the root zone regardless of its thickness.	Loading of nutrients, organics, pathogens, and other contaminants associated with livestock, poultry, and other agricultural operations is reduced.	USA	USDA Natural Resource Conservation Service Conservation Practices Index		
282			Using perennial grass based pastures to reduce acidification on pastoral soil	B			•Perennial grass based pastures reduce acification on pastoral soils. •Alkali addition to counteract net acidification may be necessary on acid soils to maintain management options for growing aluminium-sensitive species. •Nitrate leaching was measured over a 3-year period from pasture receiving 200 kg fertilizer-N/ha and from similarly grazed pasture that received no N fertilizer. •The results are discussed together with those from the same plots in the preceding 3 years.	•During the whole 6 years, mean nitrate concentrations in soil water remained below the European Union limit of 11.3 mg N/l except for the fertilized grass plots in year 5 of the study. •Quantities of nitrate leached ranged from 6 to 34 kg/ha per year from the grass/clover plots and 2-46 kg/ha from the fertilized plots. •Results indicated that N derived from excreta was the main source of leached nitrate.	USA	A 6-year comparison of nitrate leaching from grass/clover and N-fertilized grass pastures grazed by sheep.		

295			Optimizing N fertilizer management under multiple time demands	B			For farmers growing high yielding irrigated crops, using controlled-release N products in combination with untreated N fertilizer (to allow for immediate N supply) ensures a continuous release of nitrogen over the growing season.	Yields increased overall, both in comparison to unfertilized fields and fields that split nitrogen application manually.	China (Sichuan, Chongqing, Hubei, Jiangxi)			
30			Promoting buffer vegetation stripes between water bodies (streams and ditches) and agricultural areas	C					Estonia, Russia	Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Program	$4,770,000	
95			Planting Commercial Trees on Hillsides	C	H		•Landowners of a hillside planted trees to sustain hillside integrity •Community members were employed to maintain the trees •Biproducts of pruning and trimming provided firewood.	•Hillside soil runoff was decreased •Rainfall infiltration increased •Wind erosion was reduced	Uganda	Transboundary Agro-ecosystem Management Programme for the Lower Kagera River Basin		
100			Scaling-up of agroforestry innovation adoption	C			•Planting trees or hedges on hillside land. •hedges were used to protect 120,000 ha of hillside land. •34 farmers contributed to project activity.	•28 tons of potassium conserved	Uganda	N/A		N/A
158			Planting buffer strips to prevent soil erosion	C	H		•Establishing vegetated and unfertilized buffer zones alongside watercourses decreases the movement of nutrients into watercourses. •Buffer stripes also act as a shield against overland flow from agricultural area and prevent run-off to reach the watercourse. •The filtering effect with respect to nutrient flows into surface waters is expected to be low and therefore the contribution of this measure to reduce pollution is not expected to be high. •The structure and width of the margins are usually insufficient for effective filtering and because the topography alongside only a few surface waters allows for a filtering function by the vegetation on the bank.	•Buffer zones can reduce pollution by changing land use (i.e. they stop agricultural activity), thereby reducing direct pollution from inorganic fertilizers and organic manure additions. •A quantitative assessment of this reduction measure is not possible. The efficiency of buffer zones in removing suspended solids and nutrients is affected by the width of the zone, gradient of the drained field, soil type and particularly by the variety and density of zone vegetation. •Buffer stripe effectiveness depends on the establishment of buffer stripes along watercourses and the corresponding distance requirement and use restrictions.	N/A	N/A		1.900-2.600 DKK/ha
170	Could any of this info be moved to outcomes? BULLETS 3 AND 4		Introducing riparian strips and green corridors	C			•Establishing vegetated and unfertilized buffer zones alongside watercourses decrease erosion and the movement of nutrients into watercourses •Buffer zones also intercept overland flow from agricultural area just before it reaches the watercourse. •Riparian strips and green corridors help to filter nutrients and sediments before they enter water bodies. By aiding in the uptake of excessive nutrients from agriculture runoff eutrophication is avoided. •Green corridors and riparian strips can re-instate and/or increase biodiversity in an area. •It is important to consider the type and diversity of vegetation used for the buffer zones.		N/A	N/A		N/A
174			Planting permanent Grassland on erosive areas	C					N/A	N/A		N/A
184	Same as 158 IS IT A DIFFERENT PROJECT OR GEOGRAPHY? IT HAS TO BE CONNECTED TO A PROJECT -PLEASE LOOK BACK AT THE ORIGINAL SPREAD SHEET		Establishing riparian buffer strips	C			•Establishing vegetated and unfertilized buffer zones alongside watercourses decreases the movement of nutrients into watercourses. •Buffer zones can reduce pollution by changing land use (i.e. they stop agricultural activity), thereby reducing direct pollution from inorganic fertilizers and organic manure additions. •Buffer stripes also act as a shield against overland flow from agricultural area and prevent run-off to reach the watercourse. •Buffer stripe effectiveness depends on the establishment of buffer	•A quantitative assessment of this reduction measure is not possible. The efficiency of buffer zones in removing suspended solids and nutrients is affected by the width of the zone, gradient of the drained field, soil type and particularly by the variety and density of zone vegetation.	N/A	N/A		Buffer zones require a certain amount of investments to establishment.
189			Managing Vegetation on river banks	C			•Intensive use associated with grazing and other agricultural activities can impact the quantity and structure of substrate and the structure and condition of riparian zones.	•This measure can help to reduce bank/bed erosion, sediment delivery, and loss of habitat.	N/A	N/A		N/A

205	How are forage harvest practices managed? RESEARCH PROJECT DOCUMENTS		Managing Forage Harvest practices	C			•Managing Forage Harvest practices reduce sediment and nutrient pollution to water bodies originating from forest management activities to acceptable levels.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
210			Vegetated Open Channels	C	S	V	•Open channels convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. •Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils.	•Stormwater is treated by natural systems including soil filtration and plant nutrient absorption.	USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
228	**NOTE: Very few buffers or vegetation examples decribe the impact on nutrient movement.** COVER CROPS ARE ALTERNATED SO THEY TAKE UP EXCESS NUTRIENTS What is the nutrient benefit of strip cropping?		Strip Cropping	C			•Crops were grown in a systematic arrangement of strips across a field. •Types of strip cropping include contour, field or buffer. •Strip cropping is effective due to the precise arrangement of the alternating strips in the field. •The crops are arranged so that a strip of grass or close-growing crop is alternated with a clean-tilled strip or a strip with less protective cover. •Generally, the strip widths are equal across the field.		USA	Strip Cropping		
234	What are the water quality affects these areas are at risk of? HIGHER NUTRIENT LOADING FROM ANIMAL AG. FURTHER RESEARCH FOR OUTCOMES		Cultivating alternative crops	C	J		•High nutrient crops were replaced in high-risk areas for water quality effects with sound alternatives. •High-risk areas exist in places where there is intense animal agriculture because of the resulting imbalance in nutrients. •High nutrient loading crops, such as corn and soybean, should be replaced with alternatives in environmentally sensitive areas such as those in close proximity to local waters or in areas where there is a recorded nutrient imbalance for N or P. •High-risk areas include such agricultural lands as sandy soils, which allow for easy N transport. •When shifting high-nutrient loading crops out of the sensitive areas, the viability and market for the replacement crops will play an important role in deciding on which crops to grow.		USA	Guidance for Federal Land Management in the Chesapeake Bay Watershed		
241			Planting trees	C	H				Bulgaria, Romania, Maldova	Best Agricultural Practice on my Farm		$36,376
247	What is the benefit of alley cropping? LOOK FOR CONTACT INFO ON THE nrcs WEBSITE		Alley Cropping	C			•Trees or shrubs are planted in sets of single or multiple rows with agronomic, horticultural crops or forages produced in the alleys between the sets of woody plants that produce additional products. •This can be implemented on all cropland and hayland where trees, shrubs, crops and/or forages can be grown in combination.		USA	Conservation Practices		
253	How does this affect nutrients? BRUSH AROUND WATER WAYS CAN FILTER NUTRIENTS AND REDUCE EROSION		Managing brush	C			•woody (non-herbaceous or succulent) plants, including those that are invasive and noxious, are managed or removed. •Brush is managed on all lands except active cropland where the removal, reduction, or manipulation of woody (non-herbaceous or succulent) plants is desired.		USA	Conservation Practices		

255	Does this necessarily affect nutrients in the waterways? NOT SURE. PLEASE LOOK FOR MORE INFO, LIKELY ON THE NRCS WEBSITE		Clearing and Snagging	C			•vegetation along the bank is removed (clearing) and/or snags, drifts, or other obstructions are selectively removed (snagging) from natural or improved channels and streams.	•Risks to agricultural resources or civil infrastructure are reduced by removing obstructions that hinder channel flow or sediment transport.	USA	Conservation Practices		
262			Establishing a field border	C			•A strip of permanent vegetation established at the edge or around the perimeter of a field. •This practice can support or connect other buffer practices within and between fields. • This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown.		USA	Conservation Practices		
264	Effect on nutrients in soil or water? It holds moisture and could also uptake nutrients. Please call or explore with NRCS/		Cutting and removing forages from the field.	C			•The timely cutting and removal of forages from the field such as hay, green-chop or ensilage. • Forage is harvested at a frequency and height that optimizes the desired forage stand, plant community, and stand life. •Forage is harvested at the stage of maturity that provides the desired quality and quantity without compromising plant vigor and stand longevity. •Silage/haylage crops are harvested within the optimum moisture range for the type of storage method(s) or structure(s) being utilized.		USA	Conservation Practices		
265	What are the management objectives? The farmers management objectives.		Treating woody plant residues to achieve land owner objectives while protecting land and water resources (Forest Slash Treatment)	C			•Woody plant residues created during forestry, agroforestry and horticultural activities are treated to achieve management objectives. •Slash treatment methods (i.e. burning, chipping, lop and scatter, removal, crushing) will achieve landowner objectives while adequately protecting land and water resources.		USA	Conservation Practices		
268	What are the natural resource conservation purposes? NUTRIENT MANAGEMENT COULD BE ONE.		Planting Hedgerows	C			•Dense vegetation is established in a linear design to achieve a natural resource conservation purpose. •Hedgerows are established using woody plants or perennial bunch grasses producing erect stems attaining average heights of at least 3 feet persisting over winter. •Plants selected must be suited and adapted to soil and site conditions, climate, and conservation purpose.		USA	Conservation Practices		
276	Does anything in the description describe how range planting affects nutrient loss from soil? NO EXCEPT GRASSES AND OTHER COVER HELP WITH NUTRIENT UPTAKE. THEY COULD FORM A BARRIER FOR		Range planting	C	L		•Adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees are established on rangeland. •This practice is applied where desirable vegetation is below the acceptable level for natural reseeding to occur, or where the potential for enhancement of the vegetation by grazing management is unsatisfactory		USA	Conservation Practices		
285	study without clear best practice REDUCING FERTILIZER APPLICATIONS IS THE POSITIVE. PLEASE MAKE THE CONNECTION BY LOOKING FURTHER AT THE DOCUMENT. Why does more acidic soil result from decreased fertilizing and		Managing Grasslands	C			•The effect on soil fungal:bacterial biomass ratios of withholding fertiliser, lime, and sheep-grazing from reseeded upland grassland are examined.	•The cessation of fertiliser applications on limed and grazed grassland resulted in a reduction in soil pH from 5.4 to 5.1. •The cessation of fertiliser applications and liming on grazed grassland resulted in a fall in pH from 5.4 to 4.7, whereas withholding fertiliser and lime and the removal of grazing resulted in a further reduction to pH 4.5.	USA	Changes in soil fungal:bacterial biomass ratios following reductions in the intensity of management of an upland grassland.		
304			Buffer strips for soil erosion	C			Establishing vegetated and unfertilized buffer zones alongside watercourses decreases the movement of nutrients into watercourses. Buffer zones can reduce pollution by changing land use (i.e. they stop agricultural activity), thereby reducing direct pollution from inorganic fertilizers and organic manure additions. They also act as a shield against overland flow from agricultural area and prevent run-off to reach the watercourse.	The filtering effect with respect to nutrient flows into surface waters is expected to be low and therefore the contribution of this measure to reduce pollution is not expected to be high. This is because the structure and width of the margins are usually insufficient for effective filtering and because the topography alongside only a few surface waters allows for a filtering function by the vegetation on the bank. However, the effectiveness of the buffer increases exponentially with an increase in buffer width.	Europe			

305			Catch crops	C			Catch crops help to reduce the mobilisation of agricultural pollutants by increasing nutrient uptake and reducing surface run-off and soil erosion. Catch crops are fast-growing crops that are grown simultaneously with or between successive plantings of a main crop. Catch crops can also improve the soil structure and increase the amount of organic matter in the soil.	Despite the effective reducing of nitrate leaching risk, some catch crops (e.g. mustard) can lead to a decrease in nitrogen uptake by following cereals (Möller, et al, 2007).	Europe			
316			Introducing riparian strips and green corridors	C			Riparian strips and green corridors help to filter nutrients and sediments before they enter water bodies. By aiding in the uptake of excessive nutrients from agriculture runoff eutrophication is avoided.	Establishing vegetated and unfertilized buffer zones alongside watercourses decrease erosion and the movement of nutrients into watercourses. They also intercept overland flow from agricultural area just before it reaches the watercourse. Additionally, green corridors and riparian strips can re-instate and/or increase biodiversity in an area.	Europe			
321			Plant cover in winter	C			A winter cover crop is planted in late summer or fall to provide soil cover during the winter. For effectiveness against N leaching, the crop needs to take up N before the onset of winter drainage but thereafter the date of destruction is less critical. For effectiveness against P transfer, the crop does not have to be alive (i.e. straw or even a rough seedbed are equally effective) but the soil must be protected throughout the period when runoff would occur.	Plant cover in winter can reduce nitrate leaching resulting from excess winter rainfall, as well as phosphorus leaching, which occurs through sediment transport in surface run-off. It also protects the topsoil of the fields against the erosive forces of rain, melt and runoff waters during winters and reduces soil erosion into waters.	Europe			
328			Restrictions of agricultural activities on slopes	C	H		Example: Exclusion of growing of wide-row crops such as maize, potatoes, beet, broad beans, soya-beans, and sunflowers on field blocks, eventually on parts of field blocks whose average slope exceeds 12 degrees	By restricting agriculture activities on slopes, soil erosion and excess water run-off can be avoided as well as sedimentation and pollution from water run-off reduced.	Europe			
330			Riparian buffer strips	C			Establishing vegetated and unfertilized buffer zones alongside watercourses decreases the movement of nutrients into watercourses	Buffer zones can reduce pollution by changing land use (i.e. they stop agricultural activity), thereby reducing direct pollution from inorganic fertilizers and organic manure additions. They also act as a shield against overland flow from agricultural area and prevent run-off to reach the watercourse.	Europe			
335			Vegetation management on river banks	C			Maintaining plants alongside rivers, especially in over-grazed areas	Risk of sedimentation and the amount of nutrient run-off entering the water was reduced. Additionally, vegetation along river banks maintains biodiversity as well as reduces risks of soil erosion.	Europe			
105	Lots of goals but not specific best practices. THIS IS NOT A PRACTICE BUT A PROJECT. THE PRACTICE TITLE SHOULD BE CHANGED TO FOCUS ON THE MANGROVE RESTORATION AND FURTHER RESEARCH DESCRIPTION AND OUTCOMES IN THE PROJECT DOCUMENT Were these goals actually reached?		South China Sea project proposal	D	W		Project aimed to: •Improve regional co-ordination of the management of the South China Sea marine and coastal environment •Improve national management of the marine and coastal habitats •Improve integration of fisheries and biodiversity management in the Gulf of Thailand. Habitats of concern were identified as •mangroves, coral reefs, seagrass beds, and estuaries/wetlands. Environmental concerns include: •habitat loss and degradation, over exploitation, pollution, and freshwater concerns	Targets for all of the habitats: •Maintain 90% of the present mangrove area, maintain the area of coral reef with more than 50% live cover •Maintain at least 80% of the present area of seagrass in good condition •Adopt management plans for all wetlands, excluding mangroves, with emphasis on wetlands in the coastal zone of the region.	Cambodia, China, Indonesia, Malaysia, Philippines, Thailand, & Vietnam	Cambodia, China, Indonesia, Malaysia, Philippines, Thailand, & Viet Nam: Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand; GF/2730-01-4340		$34,054,830
127			Managing coastal Pollution	D			•Conditions fostering deterioration of the environment in Coastal areas of the Gulf of Thailand were identified. •Management tools for tackling coastal environmental problems were initiated. •Thailand is in the process of delegating responsibility for environmental management from the major land-based pollutants.	Total P and N into the Tha Chin River Basin has been traced back to cultivation, 90 and 88% respectively.	Thailand	N/A		N/A

54	How was degraded land restored? THE COMPOST RESTORED THE NUTRIENT BALANCE. THERE COULD BE MORE INFORMATION IN THE PROJECT REPORT DOCUMENT.		Sustainably managing degraded lands through re-cultivation with organic waste compost	E			•Terrain was investigated •Compost site was planned and constructed •Waste was separated to supply heaps •High-quality compost was obtained •Environmentally friendly use and maintenance of the site was ensured •Degraded land was restored •Awareness was built •Information was provided to the public and best practes were disseminated.		Bulgaria	Capacity Building for Sustainable Land Management (SLM) in Bulgaria	N/A	
56			Constructing small manure platforms and developing institutional and management systems for collection/delivery to central composting facilities	E	N		•Small manure platforms were constructe and institutional and management systems for collection/delivery to central composting facilities was developed. •126 farm type manure storage (for more than 10 cattle) and 77 household type manure stores (for up to 5 cattle) were constructed •Six large central manure storage and handling facilities were completed, •Machinery (container carriers, solid manure spreaders, manure mixers, liquid manure vacuum tankers and loader tractors) were procured and are in use.		Turkey	Anatolia Watershed Rehabilitation Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$45,410,000	
58	What is the effectiveness of injecting the compost? IT GOES DIRECTLY TO THE PLANT WHERE THE NUTRIENTS ARE NEEDED.		Manure compost injection	E	N		•A locally manufactured system was designed to handle poultry waste •A global positioning system was modeled to pilot the effectiveness of injecting the compost and its impact on yield and nutrient reduction.		Turkey	Anatolia Watershed Rehabilitation Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$45,410,000	
211			Composting animal mortality followed by land application of compost	E			•Routine animal mortality is composted in a designed, on-farm facility, with subsequent land application of the compost.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
216			Anaerobic Digestion	E			•Manure treatment still requires some degree of reward for the farmer himself. •Anaerobic digestion, especially with electricity production from the biogas produced, is a popular method of manure treatment. •Only really suitable for the larger farms.		Thailand, Vietnam, China	Consultants report on manure management systems required for specific livestock farms visited in Thailand, Vietman and Guangdong province, China		
217			Composting	E			Manure Composting: •Manures are collected and mixed with a carbon source. •The mixture is stacked or placed in windrows and allowed to compost for approximately 12 weeks 1:2 (v/v, manure: carbon source), unless the manure already contains at least one-third bedding, in which case no additional carbon source is needed. . During this time, the stack should be mixed or turned at least four	•Nutrient mineralization or fertilizer value is lower than manure, resulting in fewer nutrients in runoff when compost is applied to soil, as compared to manure applications.	USA	Composting Effects on Phosphorus Availability in Animal Manures		

36			Rotating crops	F					Siberia	DRP Small Grants 1.2/1.3 (Agriculture)	N/A	
107	This project says it reduces erosion but doesn't mention associated nutrient loading. IF THE SOIL AND NUTRIENTS ARE KEPT IN PLACE -- REDUCED EROSION, THERE IS LESS NUTRIENT LOSS.		Minimizing Soil Disturbance	F	S		Project aimed to •Promote conservation agriculture as a technologically-feasible, economically-viable, environomically-sustainable, and gender-responsive production system that will contribute to food security of small farm communities in the Philippines.	Expected Outcomes: •Decreased labor burdens for women, men, and children; •Improved soil quality; •Reduced production inputs (e.g. machinery wear and tear and fuel costs for tillage); •Increased agricultural profitability; •Enhanced resilience to climate change (since CAPS can reduce runoff); •Increased residual moisture, minimizing drought during extreme weather events; and •Reduced soil erosion to natural levels.	Philippines and Cambodia	LTRA-12: Conservation agriculture for food security in Cambodia and the Philippines		N/A
109	Same as 107. FURTHER RESEARCH THE PROJECT REPORT.		Rotating crops	F					Philippines and Cambodia	LTRA-12: Conservation agriculture for food security in Cambodia and the Philippines		N/A
175			Reducing fertilization	F			•A winter cover crop is planted in late summer or fall to provide soil cover during the winter. A cover crop will take up residual nitrate and other nutrients from the soil after the main crop has been harvested in the summer or early autumn, leaving less nitrate available for leaching over winter. •Ensuring that the land is not left exposed helps reduce soil erosion and the mobilization of associated pollutants. •For effectiveness against N leaching, the crop needs to take up N before the onset of winter drainage but thereafter the date of destruction is less critical. •For effectiveness against P transfer, the crop does not have to be alive (i.e. straw or even a rough seedbed are equally effective) but the soil must be protected throughout the period when runoff would occur. •Plant cover in winter protects the topsoil of the fields against the	•Plant cover in winter can reduce nitrate leaching resulting from excess winter rainfall, as well as phosphorus leaching, which occurs through sediment transport in surface run-off. According to a Finnish study plant cover in winter can reduce erosion 10-40 % and nitrate leaching 10-70 %.	N/A	N/A		
192	shorten bullet points? NOT NECESSARRY Should a distinction be made between description of actual project activities and general info about the best practice? YES PLEASE		Reducing Nutrient Losses Compared to Bare Soil	F	H		•Bare soil is a primary factor in soil erosion and the loss of unused crop nutrients, both of which impact water quality. • Four of the BEPs (buffers, cover crops, conservation tillage, and grazing management) when used incombination can greatly reduce soil and nutrient loss compared to bare soil. •Buffers, either grass or forest, are used to maintain the integrity of stream channels and shorelines and to reduce losses from upland sources of pollution by trapping or filtering sediments, nutrients, and other chemicals. •Buffers should not be fertilised or have manure added but may be flash grazed or have a once yearly hay harvest. •UNDP/GEF Danube Regional Project – Strengthening the Implementation Capacities for Nutrient Reduction and Transboundary Cooperation – grasslands were restored to buffer streams from cropland. Stream fencing was also used to exclude grazing animals from a number of spring-wetlands. •To assess reduction impact care should be taken to better describe the type and width of buffers.		Ukraine	Best Practices for Water Quality Protection and Replication		

193	Divide into 2 practices? YES PLEASE Separate info about best practices from description of Croatia project?		Conservation Tillage and Cover Crops	F	S		•Conservation tillage requires maintaining at least 30 percent soil coverage with crop residue with minimal tillage. •Cereal cover crops reduce erosion and the leaching of nitrogen into groundwater by maintaining a vegetative cover on cropland and holding nutrients within the root zone over winter. •This practice involves planting cereal crops after summer crop harvest. Nutrients are not applied to cover crops. •Legumes may also be used as cover crops to provide ground cover and "fix" nitrogen for the following crop. The Croatia Agricultural Pollution Control project: •demonstrate reduced nutrient loss, protection from soil erosion and compaction, and maintenance of soil organic matter. •For row crops, conservation tillage and the use of fall planted cover crops can be implemented in existing farming operations.	•Creating a culture of growing early planted fall cereal grain cover crops to "trap" residual nitrogen from the summer crop could provide substantial soil and water quality benefits with minimal adjustments to the next summer's production system.	Croatia	Best Practices for Water Quality Protection and Replication		
289	study: results should be more clearly stated. Haying and rotational grazing resulted in reductions in nitrogen concentration in waterways. THIS IS FINE		Haying to reduce nitrate leaching	F	O		•Two management practices were studied with regard to reducing NO3-N concentrations in ground water. This was following a fertilized, rotational grazing management practice from which ground water NO3-N concentrations exceeded maximum contaminant levels. •Rotational grazing of a grass forage without N fertilizer being applied and unfertilized grass forage removed as hay were used as alternative management practices to the previous fertilized pastures. Ground water was sampled at spring developments, which drained the watershed areas, over a 7-yr period.	Peak ground water NO3-N concentrations before the 7-yr study period ranged from 13 to 25.5 mg L-1. Ground water NO3-N concentrations progressively decreased under each watershed and both management practices. Following five years of the alternative management practices, ground water NO3-N concentrations ranged from 2.1 to 3.9 mg L-1.	USA	Reduction of nitrate leaching with haying or grazing and omission of nitrogen fertilizer.		
293			Influence of intercropping system on nutrient efficiency and crop yields	F			Intercropping of cereals with tropical forages during the dry winter seasons was encouraged to increase yield and improve nutrient efficiency. Corn was intercropped with Panicum grass and Brachiaria grass, experimenting with different seeding times and crop rotation with soybean and cotton.	Results revealed the ideal time to sow each of the grasses in relation to the time of sowing corn. Farms where this intercropping was practiced observed up to a 20% increase in nutrient use efficiency and 100% increase in profit due to intercropping.	Brazil			
4	This is very general: does anything in the financing plan address nutrient management? THIS IS A POLICY TO PROMOTE BETTER PRACTICES		Developing innovative financing mechanisms to make agro-environmental investments more attractive and pool resources for their realization	G			•Mechanisms for business development and financing were developed and tested, making agro-environmental investments more attractive and pooling resources for their realisation. • Interest was raised among commercial banks for financing agro-environmental investments in small enterprises.		Estonia, Latvia, Lithuania, Poland, and the Russian Federation	The Baltic Sea Regional Project, Tranche 1	$12,450,000	
15	Improving production efficiency does not necessarily result in nutrient management. Is this the case here? NO, BUT MORE INFORMATION SHOULD BE INCLUDED TYING THIS TO THE OTHER PRACTICES OR THIS PROJECT COULD BE REPFERENCED FOR THE OTHER PRACTICES IT MENTIONS.		Improving production efficiency through cost-effective inputs and better farm management, including selected seed usage	G			Production efficiency was improved through •crop rotation •strip cropping •buffer strip and vinyard cover cropping •Vegetative buffer •Contour plowing •Selected seed usage		Moldova	Agricultural Pollution Control Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$10,740,000	
32			Leveraging investments	G					Hungary	Reduction of Nutrient Discharges- under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$32,350,000	

50			Implementing high-priority, low-cost water capital investment programs to reduce nitrogen and phosphorus discharges from municipal sources	G			•High-priority, low-cost capital investment programs were implemented to reduce nitrogen and phosphorus discharges from municipal sources.		Bosnia and Herzegovina	Water Quality Protection Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$20,270,000	
112			Identify market opportunities	G					India and Nepal	LTRA-11: CAPS among tribal societies in India and Nepal		N/A
181	Is there a way to connect reducing irrigation consumption with nutrient loading? NO. THIS IS A POLICY		Replacing volumetric pricing with per hectare water charges	G				•Irrigation districts with volumetric (i.e. two-apart tariff) systems in the Guadalquivir basin consume on average 10 to 20% less than irrigation districts with flat rate pricing.	N/A	N/A		N/A
319			Nutrients trading scheme	G			Nutrient trading *within a watershed* is a way of allocating the total amount of pollutants that enter a water body. These trades can take place among point sources; between point and nonpoint sources; or, among nonpoint point sources.	Potential reduction in eutrophication risks in areas with less nutrient input.	Europe			
96	Does erosion protection necessarily entail nutrient management? WHEN APPLIED IN A AGRICULTURAL CONTEXT YES		Community led Soil and Water Conservation on Hillsides (erosion control)	H			•Elephant grass was planted along contour bands on hillsides •Water catchment ditches were constructed in banana plantations. •Grasses were used for building materals, doffer alternative, and mulch for bananas.	•Soils were protected from erosion.	Uganda	Transboundary Agro-ecosystem Management Programme for the Lower Kagera River Basin		
166			Minimizing erosion in cultivation systems	H	S		•Using discs or tines to cultivate the soil or direct drill into stubbles (no-till) will maintain organic matter and preserve good soil structure. • This measure is not suitable for all soil types, e.g. sandy soils, already compacted soil, and certain crops such as potatoes. •The best soils for minimal cultivation systems include clays, silty clay loams or clay loams	•Non-plowing reduces sedimentation and nutrient run-off, as well as soil compaction. This will improve infiltration and retention of water and thereby decrease total phosphorus concentrations in surface run-off. •Crop residues limit evaporation, thus retaining water for crop growth. Switching from plowing to minimal cultivation reduces energy consumption. • Impacts to soil structure are also avoided since loosening systems are eliminated. •Minimal cultivation also reduces the risk of soil compaction due to traffic.	N/A	N/A		Cost of buying new machinery.
183	Should detailed descriptions of terraces be kept? YES		Retaining and creating terraces	H			•Terraces prevent the downward flow of rainwater and soil. •Terraces retains soil, which helps to maintain crop yields. •Four types of terracing – bench, channel, narrow and broad based ridge – reduce the length of slope on a hill side, which can help to reduce erosion and prevent gully formation. •Bench terracing is done on relatively steep slopes and consists of excavating upper parts of the slope and filling the lower part with the soil materials from the upper parts. •Channel terraces are wide, shallow channels that follow the land's contour line. •Narrow based terraces consist of a number of ridges spaced 1-2 meters apart across the slope; this type is especially found in high rainfall areas. •Broad based ridge terraces are wide, low bunds following natural contour lines. Soil is excavated from both sides of the terrace; this	• Since terrances prevent the downward flow of rainwater and soil, this measure has the potential to reduce nutrient overload in near by water bodies, thus reducing possibilities of eutrophication. •Sedimentation resulting from excess soil run-off is also avoided.	N/A	N/A		N/A
185			Soil Erosion plans	H			•By devising national or regional soil erosion plans, activities centred around reducing soil erosion can be streamlined and more effective. •Currently a small number of MS are planning to come up with such plans to mitigate environmental issues, for example desertification.		N/A	N/A		N/A
252	No actual project activity described: conservation practices are not case studies but descriptions of recommended activities. PLEASE RESEARCH OUTCOMES. SAME BELOW.		Bedding	H			•Bedding: Plowing, blading, or otherwise elevating the surface of flat land into a series of broad, low ridges separated by shallow, parallel channels with positive drainage. •This practice applies to all land uses with flat to nearly flat topography and poorly drained soils where a wetland determination and scope and effect evaluation permit installation.		USA	Conservation Practices		
257	No actual project activity described: conservation practices are not case studies		Contour Farming	H			•Ridges and furrows formed by tillage, planting and other farming operations are formed to change the direction of runoff from directly downslope to around the hillslope.		USA	Conservation Practices		

258	No actual project activity described: conservation practices are not case studies but descriptions of recommended activities		Cross Wind Ridges: forming ridges across the direction of erosive winds	H			•Ridges are formed by tillage, planting or other operations and aligned across the direction of erosive winds. •The ridge orientation, height, spacing, and time period that ridges are present shall be determined using the currently approved wind erosion prediction technology and shall account for other practices in the conservation management system.		USA	Conservation Practices		
259	No actual project activity described: conservation practices are not case studies but descriptions of recommended activities		Cross Wind Trap Strips: establishing herbaceous cover resistant to wind erosion across the prevailing erosion direction.	H			•Herbaceous cover resistant to wind erosion is established in one or more strips across the prevailing wind erosion direction. •A crosswind trap strip system consists of one or more strips across the prevailing wind erosion direction.		USA	Conservation Practices		
274	No actual project activity described: conservation practices are not case studies but descriptions of recommended activities		Managing in-place natural materials, mine spoil (excavated over-burden), mine waste or overburden to reduce down-slope movement	H			•In-place natural materials, mine spoil (excavated over-burden), mine waste or overburden are managed to reduce down-slope movement. •This practice is applicable in areas where in-place material, mine spoil, waste, or overburden, or rock cut road banks are unstable, moving, or judged to have potential of moving down slope in a manner that will cause damage to life, property, or the environment.		USA	Conservation Practices		
324			Reduction of the area under autumn ploughing in regions susceptible to soil erosion	H			In regions where erosion occurs at higher rates during certain seasons (e.g. rainy seasons), leaving cereal fields under stubble and covering drainage ways with vegetation can reduce annual rates of erosion and sedimentation. For example, in countries where erosion mainly occurs in autumn and spring, farmers receive compensation for not ploughing in the fall.	By reducing soil erosion, natural soil fertilitiy is maintained, thus reducing the need for fertiliser application. Reduction in sedimentation and posible reduction in eutrophication if fertiliser application rates are reduced.	Europe			
329			Retain and /create terraces	H			Four types of terracing – bench, channel, narrow and broad based ridge – reduce the length of slope on a hill side, which can help to reduce erosion and prevent gully formation. Bench terracing is done on relatively steep slopes and consists of excavating upper parts of the slope and filling the lower part with the soil materials from the upper parts. Channel terraces are wide, shallow channels that follow the land's contour line. Narrow based terraces consist of a number of ridges spaced 1-2 meters apart across the slope; this type is especially found in high rainfall areas. Broad based ridge terraces are wide, low bunds following natural contour lines. Soil is excavated from both sides of the terrace; this type is especially found in low rainfall areas.	Since terrances prevent the downward flow of rainwater and soil, this measure has the potential to reduce nutrient overload in near by water bodies, thus reducing possibilities of eutrophication. Additionally, sedimentation resulting from excess soil run-off is also avoided.	Europe			
9	Not enough info? PLEASE SEE IF THERE IS ADDITIONAL INFO IN THE PROJECT DOCUMENT. No explicit effect on nutrient loading		Using safe, natural fertilisers (including phosphorous) and soil conditioners.	I	O		•Experimental garden for urine and human waste compost was established in 1 household •Household composting in 36 households •Training on household composting for villagers •Training of local trainers		Bulgaria	Developing a Model for Sustainable Water and Waste Management for Rural Areas in Bulgaria	N/A	
14	No explicit effect on nutrient loading		Using manure as fertilizer	I	N		•Manure was used as fertilizer •Crop rotation was implemented •Improved livestock grazing practices were implemented		Moldova	Agricultural Pollution Control Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$10,740,000	
18	Same as #13 OKAY		Training Farmers to implement organic agriculture practices	I	N		•25 farmers were informed and trained in nonpolluting agricultural practices. • Farmers, youth, students and other categories of citizens and agricultural terrains owners were involved in rehabilitation and changing for better the environment.	•Water quality and agricultural productivity were increased, progress was made towards compliance with EU directives, local institutions' capactiy was increased, and sustainable rural growth and development were increased.	Romania	Agricultural Pollution Control Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$11,100,000	

21				I			•A solid basis to agricultural production principles was provided using agrochemical lab testing and disease monitoring, managed by farmers' associations. •A scientific monitoring and community-based information system was established to reduce pesticide applications and excessive nutrient application. • Local apple farmers collaborated with farmers' organizations to reduce nutrient application.	•Environmental impacts of agriculture were reduced •Pesticide levels in the soil decreased	Macedonia/Albania	Prespa Lake Integrated Ecosystem Management. Intervention 2: Reducing Environmental Impacts of Agriculture	$13,140,000	
23	Same as #21 -LIKELY SOIL TESTING AND PLANT ANALYSIS LED TO SPECIFIC APPLICATIONS OF FERTILIZER. PLEASE RESEARCH THE PROJECT DOCUMENT		Considering actual crop needs	I	O		•Optimal fertization was determined based on individual qualities.		Macedonia/Albania	Prespa Lake Integrated Ecosystem Management. Intervention 2: Reducing Environmental Impacts of Agriculture	$13,140,000	
26			Prohibiting application of mineral fertilizers to snow cover and frozen soil	I	Q				Estonia, Russia	Development and implementation of the Lake Peipsi/Chudskoe Basin Management Program	$4,770,000	
28			Controlling application, transport and storage of mineral fertilizers and pesticides	I					Estonia, Russia	Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Program	$4,770,000	
29			Promoting low fertilizer and pesticide application rates	I					Estonia, Russia	Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Program	$4,770,000	
94	What was the resulting impact on nutrients? MORE SUSTAINABLE PRACTICE		Organic Agriculture: Reducing the dependence on the use of chemical fertilizers, pesticides, and pharmaceuticals	I	P		•Reduced the dependence on the use of chemical fertilizers, pesticides, and pharmaceuticals. •Established community-based composting facilities •Upgraded existing compost fungus activator production laboratories •Upgraded and rehabilitated biological nitrogen fertilizer mixing plants. •Rice and corn production began using organic fertilizer	•No economic analysis	Philippines	The Organic Fertilizer Production Project		N/A
122			Employing slow release and specialty fertilizers	I			•Fertilizers were programmed to release nutrients at intervals synchronized with crop physiological stages, and improve Nutrient Use Efficiency.	Nutrient loss to the environment was reduced.	India	N/A		N/A
129	General management: separate category? THIS IS THE 4Rs. PLEASE CATEGORIZE AND LOOK AT IPNI DOCUMENT FOR HOW TO TITLE AND DESCRIBE.		Managing crop nutrients	I	O		The 4Rs utilize fertilizer best management practices that address the Right Fertilizer Source, at the Right Rate, the Right Time, and in the Right Place. •For N, rates can be adjusted for in-season pre-sidedress tests, profile nitrate test, organic matter test. •P applications should be guided by P source, runoff potential, sediment transport, and soil conditions.		N/A	N/A		N/A
156			Avoiding spreading fertilizer and manure at high risk times	I	N	O	•nitrate leaching and loss of phosphorus through surface run off is diminished by avioiding spreading fertilizer and manure at high risk times. • High risk times include when there is a high risk of surface flow, rapid movement to field drains from wet soils or when there is little or not crop uptake. • The measure requires adequate collection and storage facilities. •Surface run off risk is the greatest when rain falls onto sloping ground with saturated, frozen or snow covered soils. •Rapid flow of nutrients through the soil is most likely to occur from drained soils when they are wet and rainfall follows soon after applying fertilizers. •A way to avoid leaching in the winter due to rainfall is to apply nitrogen in the autumn. •The method may limit opportunities for manure application before some spring crop are sown.	•Estimates expect a reduction of the P baseline losses of 50% on the sandy loam and 20% on clay loam soil. •Storage can lead to some increases in ammonia and methane emissions, so minimum specifications are required to reduce such losses.	N/A	N/A		N/A

157			Avoiding spreading fertilizers and manure in high risk areas	I	N	O	•Never applying mineral fertilizers and manure to high risk areas helps to prevent run-off of nitrate and phosphorus in the watercourses. •Risk areas include areas with flushes draining to a nearby watercourse, cracked soils over field drain or fields with high phosphorus number. •To determine Phosphorus risk areas, a risk index or specific risk factors can be used. •Areas with a high phosphorus index have a significant risk of losing P through eroded soil particles and by leaching. •Applying manure to these areas will increase the excessive phosphorus content of the soil and increase the amounts lost. •This method is most effective against losses of phosphorus where the primary mechanism of transport is surface run-off. •High risk areas are field areas with direct flow paths to watercourses.	•A reduction or complete avoidance of manure application in such areas reduces the risk of manure or fertilizer draining into field drains and transporting pollutants into surface or groundwater. •Furthermore, the method also allows for a reduction in ammonium-N losses and nitrous oxide emissions.	N/A	N/A		N/A
172			Preparing nutrient balances to inform farmers on the efficiency of nutrient utilization and help to identify the cropping phases in which nutrients are lost.	I			•The preparation of nutrient balances is a beneficial tool for long-term planning of fertilizer use. •Nutrient balances inform farmers on the efficiency of nutrient utilization and help to identify the cropping phases in which nutrients are lost. •The calculation of nutrient balances help to strengthen water protection measures for each farm and parcel. •Creating a nutrient balance spread sheet helps to accurately account for fertilizer use to decrease application, which helps to keep excess nutrients in the soil to a minimum. •It also maximises efficient use of nutrients already in the soil by ensuring that the soil is in a sufficiently fertile state. •Accurate fertilizer application, which is based on the crop type, its yield and the characteristics of the parcel to the economic optimum, will ensure that the necessary quantities of the essential crop nutrients are only available when required for uptake by the crop.	•By reducing nutrient application due to nutrient balance analysis, eutrophication and excessive algal growths caused by nutrient leaching from fields can be minimised or avoided. •Groundwater (used for drinking water supplies) contamination resulting from high nitrate content can also be minimised or avoided. •As nutrient management systems incorporating nutrient balances encourage efficient use of manure, there is a good possibility that ammonia emissions can be reduced.	N/A	N/A		N/A
176			Reducing fertilization	I			•Reducing the amounts of nitrogen and phosphorus fertilizers by a certain percentage below the economic optimum will reduce the residual nitrate in the soil after harvest and in the short term the amount of soluble phosphorus.	•By reducing fertilizer application, eutrophication and excessive algal growths that results from N and P leaching can be minimised or avoided. •Groundwater (used for drinking water supplies) contamination resulting from high nitrate content can also be minimized or avoided. •In the long term, reducing phosphorus fertilizers can reduce the amount lost as particulate phosphorus. •There will be a reduction of residual soil nitrate available for leaching in the autumn but there will be no effect on the nitrate mineralized from soil organic matter. •For a long run when soil phosphorus reserves will be run down there will be a reduction in soluble phosphorus loss.	N/A	N/A		
195			Build-Maintenance approach	I	T		•Fertilizer rate recommendations are made to meet the nutrient requirement of the immediate crop and to raise soil test values to the critical level over a specified time period. •Once the soil test value is raised to the critical level, the soil is largely capable of meeting the crop nutrient requirement in a given year and only the amount of nutrients removed with the crop are applied to maintain the soil test levels in a target range slightly above the critical level. •Once soil test values exceed this target range, no nutrient application will be recommended—except for the small amounts supplied in starter fertilizer applications.	•Nutrient application and runoff is reduced, without any negative effect on agricultural productivity		CEU in Nutrient Management		

196			Nutrient Sufficiency Approach: applying enough fertilizer to maximize profitability in the year of application without considering future soil test values	I	O		•The goal is to apply, on average, just enough fertilizer to maximize profitability in the year of application without considering future soil test values. •The recommended rate will be relative to a "critical" soil test level, at which the soil is capable of supplying nutrient amounts sufficient to achieve about 90 to 95% of maximum yield. •The recommended rate will exceed crop removal at very low soil test levels and approach zero as the soil test value reaches the critical level—although a small amount of fertilizer (particularly P and/or K) is often suggested in starter applications.	•Over time, using this method will result in soil test levels equilibrating in the low, or deficient, category and nutrient applications will be required each year.		CEU in Nutrient Management		
239			Nutrient Application Methods	I	O		To minimize nutrient losses: •Apply nutrient materials uniformly to application area(s) •Do not apply nutrients to frozen, snow-covered or saturated soil if the potential risk for runoff exists •Consider plant growth habits, irrigation practices, and other conditions so as to maximize availability to the plant and minimize the risk of runoff, leaching, and volatilization losses •Apply nutrients associated with irrigation systems in a manner that prevents or minimizes resource impairment.	Proper nutrient application methods reduce the risk of nutrient transport to surface and ground water, or into the atmosphere shall be employed.	USA	Natural Resources Conservation ServiceConservation Practice Standard Nutrient Management		
242			Enhancing soil productivity through a balanced use of local and external sources of plant nutrients	I			•Soil productivity is enhanced through a balanced use of local and external sources of plant nutrients in order to maintain or improve soil fertility.		Rome	Guide to Efficient Plant Nutrition Management		
315			Integration of fertilizer and manure nutrient supply	I	M		Determining the amount of nutrients supplied to soils during manure application helps farmers to judge the amount and ideal timing of additional fertilizers required by the crop. Excessive application of mineral fertilizer applications is avoided, so optimum economic production level can be reached and soils can be adequately maintained. The method is most effective on farmers where manure is supplemented by mineral fertilizers.	Taking better account of the nutrients contained manure can reduce the need for fertilizer inputs, which in turn minimises nitrate and phosphorus losses. By integrating fertilizer and manure application, dentrification, which leads to increased levels of nitrogen oxide emissions, can be minimised as a result of proper scheduling.	Europe			
17	Actual activities not described: which nonpolluting practices reduce nutrient load? THIS IS MORE A PROJECT THAN PRACTICE,		nonpolluting agricultural practices	J			•Environmental awareness was increased among farmers, civil society and authorities •Responsibility of LPA and citizens toward environmental protection increased •Unauthorized dumping sites were liquidated •Levels of competency and practical abilities to promote and apply the best agricultural practices for farmers increased •Transboundary experience and knowledge was shared in the field of practical application of environmentally oriented agricultural practices.	•Nutrient load of the Danube hydrographic basin was reduced.	Moldova, Bulgaria, Romania	Danube Regional Project (DRP) Small Grants: Small Grants: Best Agricultural Practice in my Farm: NGOs, Farmers, Specialists Working together for BAP in Bulgaria, Romania and Moldova	$36,676	
25	No specifics on what management practices were employed. YOU MIGHT ADD SOME MORE DESCRIPTION TO THE TITLE -- OVERALL NUTRIENT MANAGEGMENT		Encouraging best agricultural practices and management of nutrient losses	J			• Measures were taken to control pollution from crop production, programme strategy focusing on the prevention of nutrient pollution from plant production. • Sound scientific base for the long-term water management is in place; • Stakeholder capacities were raised. • Joint monitoring activities were supported and carried out; • Joint data processing and databases were established; • Information exchange and networking was begun • Public/local stakeholders were engaged in program administration		Estonia, Russia	Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Program	$4,770,000	
62			Improving living conditions and hygiene facilities	J					Bulgaria	Developing a Model for Sustainable Water and Waste Management for Rural Areas in Bulgaria	N/A	
108			Continual Mulching	J					Philippines and Cambodia	LTRA-12: Conservation agriculture for food security in Cambodia and the Philippines		N/A
110			Prioritizing local resource use preferences	J					India and Nepal	LTRA-11: CAPS among tribal societies in India and Nepal		N/A

136	How does carbon sequestration affect nutrients in water supply? THIS IS JUST ANOTHER BENEFIT -- WE NEED THE PROCESS AND		Carbon Sequestration	J			Carbon offsets: 2.3 mtCO2 by 2017		Tanzania, Uganda, Kenya	The International Small Group and Tree Planting Program		$1,200,000
137			Carbon Sequestration	J					Mauritania and Senegal	Participatory Rehabilitation of Degraded Lakes		$8,000,000
138			Carbon Sequestration	J					Sudan	Community-based Rangeland Rehabilitation for Carbon Sequestration		$1,500,000
139			Carbon Sequestration	J			Carbon offsets: 5.3 mtCO2		Benin	Village-based Management of Woody Savanna & Establishment of Woodlots for Carbon Sequestration		$2,500,000
140			Carbon Sequestration	J			Carbon offsets: 1.5 mtCO2		Bukina Faso	Sustainable Energy Management Project		N/A
141			Carbon Sequestration	J			Carbon offsets: 7.1 mtCO2 over 99 years		Uganda	Forest Rehabilitation in Mt. Elgon & Kibale National Parks		N/A
142			Carbon Sequestration	J					Mozambique	Nhambita Community Carbon Project		N/A
143			Carbon Sequestration	J			Carbon offsets: 0.9 mtCO2 by 2012		Uganda	Plan Vivo Project		$1,355,000.70
144			Carbon Sequestration	J					Kenya	Western Kenya Integrated Ecosystem Management Project		$4,100,000
145			Carbon Sequestration	J					Senegal	Sequestration of Carbon in Soil Organic Matter		N/A
146			Carbon Sequestration	J			Carbon offsets: 2.3 mtCO2		Tanzania and Uganda	Commercial Plantation Projects		$600,000
147			Carbon Sequestration	J					Mali	Carbon from Communities		$140,000
148			Carbon Sequestration	J			Carbon offsets: 2.81 mtCO2 by 2017		Democratic Republic of Congo	Bateke Fuelwood and timber Plantation		N/A
149			Carbon Sequestration	J			Carbon offsets: 0.25 mtCO2 by 2017		Uganda	Nile Basin Reforestation		N/A
150			Carbon Sequestration	J			Carbon offsets: 1.8 mtCO2 by 2017		Niger	Aracia Community Plantations		N/A
151			Carbon Sequestration	J			Carbon offsets: 0.95 mtCO2 by 2017		Mali	Aracia Community Plantations		N/A

152			Carbon Sequestration	J			Carbon offsets: 0.4 - 4.0 mtCO2 by 2017		Madagascar	Andasibe-Mantadia Biodiversity Corridor		$150,000,000
153			Carbon Sequestration	J			Carbon offsets: 0.6 mtCO2 by 2017		Kenya	Green Belt Movement		N/A
154			Carbon Sequestration	J			Carbon offsets: 5.02 mtCO2 by 2017		Ethiopia	Humbo Assisted Regeneration		N/A
199	What is "liquid dairy storage"- is this talking about milk, manure or both?		Covering liquid dairy storage to prevent transfer of volatile compounds.	J			•Using permeable plastic over liquid dairy storage creates a physical barrier to prevent mass transfer of volatile chemical compounds from the liquid by decreasing wind velocity (decrease surface area), and reducing radiation onto the manure storage surface (lower temperature).		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
245	What does this have to do with nutrients? IT DOES NOT. BUT IS A PRACTICE FOR OVERALL WHOLE FARM PLANNING- PERHAPS DESCRIBE AS SUCH.		Constructing an access road	J			•A fixed route is provided for vehicular travel for resource activities involving the management of timber, livestock, agriculture, wildlife habitat, and other conservation enterprises while protecting the soil, water, air, fish, wildlife, and other adjacent natural resources.		USA	Conservation Practices		
269			Controlling herbaceous weeds	J			•Herbaceous weeds including invasive, noxious and prohibited plants are removed or controlled. •Herbaceous weed control will be applied in a manner to achieve the desired control of the target species and protection of desired species. •This will be accomplished by mechanical, chemical, burning or biological methods either alone or in combination.		USA	Conservation Practices		
298			Cropping history influences decisions on soil sampling depth	J			Incorporating crop history into soil analysis	Incorporating crop history can reveal information about the soil at depths greater than the average soil samples; considering if leguminous plants were previously grown on a field might reduce the recommended amount of nitrogen to be applied, for example.	Canada			
300			Water and nutrient management practices improve groundwater quality in Nebraska, USA	J			Increasing N removal with crop harvests, shifting from furrow to sprinkler irrigation, and changing time of application and source.	Groundwater nitrate in the area declined over time from 1987 to 2005.	Nebraska, USA			
322			Reduced fertilisation	J			Reduce the amounts of nitrogen and phosphorus fertilizers by a certain percentage below the economic optimum.	This will reduce the residual nitrate in the soil after harvest and in the short term the amount of soluble phosphorus. In the long term reducing phosphorus fertilizers can reduce the amount lost as particulate phosphorus.	Europe			
22	Same as #21 SAME AS ABOVE		Sustainable irrigation practices	K			•Groundwater and surface water resources were conserved through alternative apple orchard management.		Macedonia/Albania	Prespa Lake Integrated Ecosystem Management. Intervention 2: Reducing Environmental Impacts of Agriculture	$13,140,000	
161	Does damage to hydrological systems necessarily cause nutrient leaching? YES		Changing abstraction regimes for irrigation	K			•Agriculture abstracts surface water during dry periods when water bodies are already naturally low, which exacerbates drought conditions. •By increasing storage capabilities, farmers can abstract water during high flow times to minimise abstractions during dry period.	•Hydrological systems are less damaged by agricultural activities during dry periods.	N/A	N/A		N/A
186	Does reducing water consumption count as nutrient management? NO BUT OVERALL WHOLE FARM PLANNING		Switching irrigation methods	K			•By switching from spray irrigation to drip irrigation, farmers can increase efficiency in water use. •This measure can help to minimise the adverse effects of water abstraction on the hydrological cycle by reducing the amount of water used in agriculture.	•Switching to more efficient irrigation methods can reduce water on-farm water use up to 50%.	N/A	N/A		Center pivot [sprinkler irrigation] systems have a total 'in-field' cost of $600 to $1,000 per acre. Drip or trickle systems cost $800 to $1,600 per acre.

223			Managing Spray Fields	K	N		Management of spray fields includes •installing the appropriate manure storage, pumping and application equipment •selection of an appropriate crop •estimating a rate of application that will avoid runoff and leaching of phosphorus and other nutrients •supplying the crop with sufficient nutrients while avoiding over-irrigating and over-fertilizing the spray field. •Irrigation of spray fields should not exceed the infiltration rate of the soil, otherwise runoff will result. For many soils this should not be greater than 1 inch per 24 hours. •Where possible, spray field applications should correspond with the active growing season for the crop or pasture. •Application rates should not exceed the nitrogen requirements of the		USA	Management of Spray Fields		
271			Managing Irrigation Water	K			•The volume, frequency and application rate of irrigation water are controlled to ensure water is used in a planned, efficient manner. •Water shall not be applied in excess of the needs to meet the intended purpose. •Measurement and determination of flow rate is a critical component of irrigation water management and shall be a part of all irrigation water management purposes.		USA	Conservation Practices		
272	Would nutrients end up in the irrigation reservoir? Would it prevent nutrients from being applied to crops? MORE RESEARCH NEEDED.		Constructing Irrigation Reservoirs	K	V		•An irrigation water storage structure is made by constructing a dam, embankment, pit, or tank. •Storage capacity, and inflow/outflow capacity requirements for irrigation storage reservoirs are designed and planned. •Storage reservoirs are planned and located to serve as an integral part of an irrigation system.		USA	Conservation Practices		
294			Adapting N management for potato to irrigation regime in China	K	O		Study conducted on the effects of drip vs. flood irrigation on potato tuber yield, as well as the effect of reducing the nitrogen applied to 50% vs. leaving it at 100%.	The results showed that drip irrigation increased tuber yield, N recovery efficiency, and water use efficiency over flood irrigation. The results also showed that reduced N application (50%) produced similar potato tuber yield but further increased the N recovery efficiency.	NW China (arid to semi-arid, annual rainfall of 200-400mm)			
307	Same as 186		Changes in abstraction regimes for irrigation	K			Often times, agriculture abstracts surface water during dry periods when water bodies are already naturally low, which exacerbates drought conditions. By increasing storage capabilities, farmers can abstract water during high flow times to minimise abstractions during dry period.	Mitigates the negative impacts of agriculture on the hydrological regime.	Europe			
332			Switching irrigation methods	K			By switching from spray irrigation to drip irrigation, farmers can increase efficiency in water use. Switching to more efficient irrigation methods can reduce water on-farm water use up to 50%.	This measure can help to minimise the adverse effects of water abstraction on the hydrological cycle by reducing the amount of water used in agriculture.	Europe			
160	No project information available. WHERE DID THIS COME FROM?		Cessation of agricultural land use for permanent grassland	L				•reduces physical pressures on rivers (e.g. water abstraction for irrigation) •reduces diffuse nutrient pollution to water bodies.	N/A	N/A		N/A
165			Converting to extensive grassland	L			•Converting from agriculture to grassland has most potential in areas previously used as grazing pastures due to its conservation value. •This measure will reduce nitrogen and phosphorus losses due to lower inputs in the area.	•The reduction in N and P will reduce eutrophication potential in nearby water bodies. •Permanent grass cover reduces soil erosion. • Biodiversity in the area is also improved.	N/A	N/A		N/A
182	How is this related to nutrient management? LIMITS EROSION		Restricting agricultural activities on slopes	L			•Slopes are high risk areas for soil erosion. •This measure includes guidelines for farmers on restrictions of land use. • Exclusion of growing of wide-row crops (such as) maize, potatoes, beet, broad beans, soya-beans, and sunflowers on field blocks, eventually on parts of field blocks whose average slope exceeds 12 degrees	•By restricting agriculture activities on slopes soil erosion and excess water run-off can be avoided. •Less sedimentation and pollution from water run-off.	N/A	N/A		N/A
235			Retiring Land	L			•Highly erodible lands were retired from cropland and replaced with perennial native vegetation •A soil conservation plan and a nutrient management plan were developed and implemented to reduce sheet and rill erosion to the Soil Loss Tolerance Level.	•Erosion and nutrient loss was decreased.	USA	Guidance for Federal Land Management in the Chesapeake Bay Watershed		

244	What is the outcome? Does "desired resource conditions" involve soil nutrient content? LIMITS ACCESS TO WATER		Excluding animals, people, vehicles and/or equipment from an area	L			•Desired resource conditions are achieved by monitoring and managing the intensity of use by animals, people, vehicles, and/or equipment in coordination with the application schedule of practices, measures and activities specified in the conservation plan.		USA	Conservation Practices		
256	I can see how this would affect the nutrient content of the soil, but it's not included in the description. PLEASE ADD		Closing Waste Impoundments	L			Waste impoundments (treatment lagoons and liquid storage facilities), that are no longer used for their intended purpose, are closed in an environmentally safe manner.		USA	Conservation Practices		
267	No direct connection to nutrients LIMITS ACCESS TO WATER AS WELL		Protecting Heavy Use Area	L			•Areas frequently and intensively used by people, animals or vehicles are stabilized by establishing vegetative cover, surfacing with suitable materials, and/or installing needed structures. •This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address one or more resource concerns.		USA	Conservation Practices		
306			Cessation of agricultural land use for permanent grassland	L			Agricultural lands are permanently retired and converted to grassland. Subsidies for this measure will be required to ensure that farmers participate.	This measure reduces physical pressures on rivers (e.g. water abstraction for irrigation) and at the same time reduces diffuse nutrient pollution to water bodies.	Europe			
311			Conversion to extensive grassland	L			Retire agricultural lands and convert into grasslands. Converting from agriculture to grassland has most potential in areas previously used as grazing pastures due to its conservation value.	This measure will reduce nitrogen and phosphorus losses due to lower inputs in the area. Permanent grass cover also reduces soil erosion, and biodiversity in the area is also improved.	Europe			
37			Adjusting livestock Density	M			•Lifestock density was adjusted in order to ensure a balance of N content from manure and feed. •N content was capped at 170kg/ha	•Nitrogen load was reduced and nitrogen overload to surrounding systems was prevented.	Siberia	DRP Small Grants 1.2/1.3 (Agriculture)	N/A	
177			Reducing livestock density	M			•A decrease in livestock density has a two-fold effect: reduction in physical impacts and a reduction in chemical impacts. •Physical impact, such as soil compaction and loss of vegetation cover, are mitigated. A reduction in livestock numbers on farms decreases excess manure. As a result, there is less of a need to build storage facilities and this is less risk of nutrient run-off. •Reducing livestock density can have a positive impact on water in that nutrient run-off resulting from manure application is minimised.	•Reducing livestock density can reduce nutrient surpluses at a local and regional level, depending on the level of commitment. • water quality in neighbouring streams improves and threats of eutrophication are reduced. • Fewer livestock can improve biodiversity; heavily grazed plant species can regenerate. •Ammonia emissions from manure are also reduced.	N/A	N/A		N/A
197			Poultry Litter Treatment	M	N							
201			Dairy Precision Feeding: Reducing the quantity of P and N fed to livestock by formulating diets to minimize nutrient excretion.	M			•Dairy Precision Feeding reduces the quantity of P and N fed to livestock by formulating diets to minimize nutrient excretion. •Dairy precisions feeding reduces the quantity of phosphorous and nitrogen fed to livestock by formulating diets within 110% of Nutritional Research Council recommended level in order to minimize the excretion of nutrients without negatively affecting milk production.	•Nutrient excretion is minimized.	USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
212			Offstream watering with fencing	M			•Animals are excluded from streams. •Alternative watering is provided. •Fencing is installed to eliminate livestock access to narrow strips of land along streams.	•The implementation of stream fencing should substantially limit livestock access to streams, eliminating direct manure deposition to streambeds and banks and reducing erosion and nutrient deposition to riparian areas.	USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
213			Offstream watering without fencing	M			•Alternative drinking water sources are created away from streams to reduce the time livestock spends near and in streams and streambanks.	•This reduces direct manure deposition to streambeds and banks. •Erosion and nutrient deposition to riparian areas are also reduced.	USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		

218			Managing Barnyard/Feedlot Runoff	M			•A system was planned for collection, treatment and reduction of runoff from a barnyard/feedlot to improve water quality.	•Intercepting or preventing outside water from entering the barnyard/feedlot using roof gutters, drip trenches or surface water diversions keeps clean water out of the barnyard/feedlot.	USA	Barnyard/Feedlot Runoff Management		
219	Restructure to emphasize nutrient load reducing possibilities YES		Adopting recommended dietary phosphorus levels for dairy cows	M			•Given the direct relationship between the amount of P fed to dairy cows and the amount of P in manure, the simple practice of adopting the dietary P recommendations for dairy cows recently established by the National Research Council (NRC, 2001) would greatly reduce manure P levels and would help farmers meet manure P-based management practices. •The P requirement of most lactating dairy cows can be met if the diet contains 0.32-0.38 percent P. •Holstein cows producing milk containing 3.5 percent fat and 3.0 percent true protein have a dietary requirement (dry matter basis) of 0.32, 0.35, 0.36 and 0.38 percent P for milk production amounts of 55, 75, 100, and 120 lbs/day, respectively. •Many dairy farmers feed P in great excess of these NRC-recommended levels.		USA	Dietary Phosphorus Levels for Dairy Cows		
221	"Most phosphorus (P) loss from grazing systems occurs through surface runoff, which carries both dissolved and particulate forms of P to surface waters." attaching this information to practices reducing surface runoff would connect to nutrient loss. NEED MORR SPECIFICS FROM REPORT		Restricting Grazing Systems	M			•Grazing management is the manipulation of animal grazing to achieve optimum and sustained animal, plant, land, environmental or economic results while ensuring a continuous supply of forages to grazing animals. •Most phosphorus (P) loss from grazing systems occurs through surface runoff, which carries both dissolved and particulate forms of P to surface waters. •As surface water bodies become enriched with P, overall water quality deteriorates. •An efficient grazing management system will restrict the transport of soil particles in surface runoff by maintaining good vegetative soil coverage with appropriate grass/legume species that promote physical entrapment of eroded soil particles and particulate-bound nutrients.	•These practices will result in less loss of sediment to water bodies. •Increased water infiltration will reduce surface runoff volume, reduce the loss of dissolved P and maintain higher levels of soil moisture for optimum pasture growth. •Increased organic matter content due to continuous vegetative coverage of the soil will also help to maintain optimum conditions for soil microflora and good soil structure.	USA	Grazing Management		
236			Excluding livestock from streams	M			Livestock were excluded from streams and streambanks. Fencing is the most reliable way to protect streams and riparian areas from the effects of livestock, and can be woven wire or electric.	This practice •Reduces nutrient inputs, •Reduces streambank erosion •Reduces sediment inputs and •improves animal health.	USA	Guidance for Federal Land Management in the Chesapeake Bay Watershed		
248	No connection to nutrient loading AGREED		Constructing Animal Mortality Facility	M			•An on-farm facility was constructed for the treatment or disposal of livestock and poultry carcasses for routine and catastrophic mortality events. •The facility may not be appropriate for mortality resulting from disease.		USA	Conservation Practices		
249	No connection to nutrients or water content. LIMITING THE ABILITY OF LIVE STOCK TO GET NEAR WATER HELPS		Constructing Animal Trails and Walkways	M			•Lanes or travel ways that facilitate animal movement were established. •Animal trails or walkways shall be constructed wide enough to accommodate movement of animals and access by operator for management and maintenance.		USA	Conservation Practices		
283	Define "nil and restricted" grazing systems and how an "effluent application system" is related. MORE SPECIFICS NEEDED		Restricting Grazing Systems	M			•The economic implications of nil and restricted grazing systems are examined based on data from an average new Zealand dairy farm and from a long-term farmlet study.	•The cost/benefit analysis of both grazing systems suggested a small negative return on capital, except when the costs of an effluent application system were excluded. •It is concluded that a restricted grazing system for the average New Zealand dairy farm is likely to be economically viable, on farms where an effluent application system is already in place.	New Zealand	An analysis of environmental and economic implications of nil and restricted grazing systems designed to reduce nitrate leaching from New Zealand dairy farms: Pasture production and cost/benefit analysis.		
284	This describes bacterial content in streams: does bacteria fit in the "nutrient" THE MANURE WILL HAVE BOTH NUTRIENTS AND BACTERIA		Excluding livestock from streams	M			•Weekly grab samples were collected for 7.5 years from a small stream draining a cow pasture and analyzed for fecal coliform and enterococci. In situ measurements of pH, dissolved oxygen, temperature, conductivity, and turbidity were made during most grab sampling events.	•After fencing, fecal coliform and enterococci levels decreased 65.9% and 57.0%, respectively. •The decreased bacteria levels were significantly different, indicating that livestock exclusion fencing was effective at reducing bacteria levels in the stream.	USA	Changes in a stream's physical and biological conditions following livestock exclusion.		

286	More study than best practice, need to be reworded for appendix. What is unsaturated hydraulic conductivity?that describes the ease with which a fluid (usually water) can move through pore spaces or fractures. It depends		Excluding livestock from grazing on degraded soil to allow for natural regeneration	M			The potential for degraded physical properties of soil to regenerate naturally after exclusion of grazing animals was examined at a long-term stocking rate trial in Australia.	•Unsaturated hydraulic conductivity was measured before grazing was excluded, and after 7 months and 2.5 years' grazing exclusion. •After 2.5 years, there were significant increases in unsaturated hydraulic conductivity at 5 and 15 mm tension in the ungrazed treatments compared with the grazed controls.	Australia	Changes to soil physical properties after grazing exclusion.		
287	Negative study results. Should this be included? YES-UNDERSCORE THAT IMPLEMENTING THESE PRACTICES AS PART OF A SYSTEM OF PRACTICES IS MOST EFFECTIVE. IT IS AN IMPORTANT PART.		Grazing best management practices	M			The effectiveness of grazing best management practices (BMPs), such as alternate water sources, alternate shade sources, supplemental feeding, and riparian buffers, for improving the water quality of streams in grazed watersheds of the humid region was examined. The project sites consisted of two replications of three treatments: control, selected BMPs with free access to the stream, and selected BMPs with limited access to the stream.	Results from this project indicated that minimal water quality benefits were incurred by implementing a BMP system	USA	Effects of cattle grazing and BMPs on stream water quality.		
288	Emphasize N and P reduction in "outcomes": it gets lost with other information. EMPLHASIZE THE FIRST OUTCOME. PROVIDE MORE SPECIFICS ON WHAT HAPPENED.		Off-stream Water Source	M			•A multi-disciplinary study was conducted to evaluate effectiveness of providing cattle with an off-stream water source (i.e., water trough) in reducing stream bank erosion and fostering water quality improvements. •This study was conducted on two commercial cow-calf operations in southwest Virginia which used rotational stocking.	•Stream bank erosion was reduced by 77% due to installation of the alternative water source. •Concentrations of total suspended solids, total nitrogen, and total phosphorus reduced by 90, 54, and 81%, respectively when an alternative water source was provided. • When given the choice, cattle were observed to drink from a water trough 92% of the time, compared to the time which they spent drinking from the stream.	USA	Off-stream water sources for grazing cattle as a stream bank stabilization and water quality BMP.		
290			Restricting Grazing time	M			•This study investigated the effects of grazing management of brassica crops during winter on soil physical properties and sediment, phosphorus (P), and E. coli loss via overland flow. •Dairy cows were allowed either unrestricted grazing, grazing restricted to 3 h, or no grazing.	•For total P, the mean load in overland flow from the unrestricted grazing treatment after grazing was 3.31 mg/plot compared with restricted grazing (0.74 mg/plot) and ungrazed (0.76 mg/plot) treatments. • Treading in the unrestricted treatment decreased soil bulk density and saturated hydraulic conductivity (Ksat), and increased surface roughness, loads and concentrations of suspended sediment, and E. coli and P loss in overland flow relative to the ungrazed treatment.	USA	Restricting the grazing time of cattle to decrease phosphorus, sediment and E. coli losses in overland flow from cropland.		
291			Adjusting stocking density	M			Integrated economic-environmental model simulations performed for the Lake Fork Reservoir Watershed in northeast Texas indicate that appropriate pasture nutrient management including stocking density adjustments and more efficient commercial fertilizer use could lead to significant reductions in nutrient losses.	Soluble and organic P losses were predicted to decline by 54 and 13% relative to baseline conditions when manure P was assumed totally plant available (Low P scenario). The soluble and organic P loss reductions declined to 33 and 7% when only inorganic P was assumed plant available (High P scenario). Simulation of an N-based manure management plan resulted in the smallest predicted soluble and organic P loss reductions of 18 and 3%. Nitrogen loss predictions ranged from a 7% decline to a 1% increase for the 3 scenarios as compared to the baseline.	USA	Economic and environmental impacts of pasture nutrient management.		
323			Reduction in livestock density	M			Reducing livestock density can reduce nutrient surpluses at a local and regional level, depending on the level of commitment.	Reducing livestock density can have a positive impact on water in that nutrient run-off resulting from manure application is minimised. As a result, water quality in neighbouring streams is better and threats of eutrophication are reduced.	Europe			
3			Combining of solid and semi-solid slurry for fertilizer	N			•Slurry is a mix of of animal waste, organic matter, and sometimes water which is aged and used as fertilizer. •Farmers shifted from the exclusive use of solid manure to a combination of solid and semi-solid manure and slurry for fertilisation. •Fertilizing with slurry increases the percentage of nutrients recirculated from manure to fertilisation on farms.	Over 60% of farms shifted from exclusive use of solid manure, and 80% of participating farms shifted completely to slurry use.	Estonia, Latvia, Lithuania, Poland, and the Russian Federation	The Baltic Sea Regional Project, Tranche 1	$12,450,000	
38	No connection to nutrients stated. MANAGING MANURE IS CRTICAL TO NUTRIENT MANAGEMENT WHERE IT IS THE PRIMARY FERTLIZER SOURCE.		Sustainably and cost-effectively managing manure practices	N			•Farms should have sufficient storage facilities for six months of manure production		Siberia	DRP Small Grants 1.2/1.3 (Agriculture)	N/A	
39	No connection to nutrients stated.		Sustainably and cost-effectively managing manure practices	N			•Manure should not be spread between October and March		Siberia	DRP Small Grants 1.2/1.3 (Agriculture)	N/A	

40	No connection to nutrients stated.		Sustainably and cost-effectively managing manure practices	N			•Appropriate spreading techniques should be used for livestock manure using (for liquid and slurry) band laying system or injection		Siberia	DRP Small Grants 1.2/1.3 (Agriculture)	N/A	
41	No connection to nutrients stated.		Sustainably and cost-effectively managing manure practices	N			•Manure should ideally be incorporated into soil within 6 hours		Siberia	DRP Small Grants 1.2/1.3 (Agriculture)	N/A	
55	Waste utilization is related to nutrients but not the same: no direct connection made.		Constructing an environmentally friendly common village manure heap	N			•Manure heap was planned and built •The facility was ecologically safeguarded using draining and green fences •Use of the facility was regulated • Environmentally-friendly utlization of organic waste was ensured •Awareness was built and information and best practices were disseminated to the public.		Bulgaria	Capacity Building for Sustainable Land Management (SLM) in Bulgaria	N/A	
57	Manure management could affect nutrient concentration in the soil, but they don't say how. MORE SPECIFICS FROM THE PROJECT		Employing new technologies for storage and collection of manure	N			•Standard design containers (normally used for garbage collection) were introduced for manure storage and collection. •Containers are collected by purpose-built vehicles, which haul the manure to central storage and composting facilities.		Turkey	Anatolia Watershed Rehabilitation Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$45,410,000	
60			Sustainably and cost-effectively managing manure practices	N			•Technical assistance was provided to farmers receiving nitrate mitigation grants •Nutrient management was planned the project to promote optimal use of organic and mineral fertilizers in order to reduce the loss of N and P to water bodies •Crop cover technology was used to reduce nutrient loss, protect soil from compaction and erosion, maintain soil organic matter, enhance biodiversity and provide additional fodder and/or green manure.	N and P loss to water bodies was reduced due to nutrient management and crop cover technology.	Croatia	Agricultural Pollution Control Project - under the Strategic Partnership Investment Fund for Nutrient Reduction in the Danube River and Black Sea	?	
101	This is talking about fertilizers that are the most productive but it doesn't say that those are the ones that are the most effective at reducing nutrient levels. MORE SPECIFICS FROM THE PROJECT		Using agro-forestry, green manures, farmyard manures, and locally available Minjingu phosphate rock (MPR) to increase agricultural productivity	N			•Different organic materials were collected to prepare composts to increase productivity of various crops. •Farmyard manure, maize stover, and Sesbania and Tithonia green manures were the most abundant compostable organic materials. •Combinations of organic materials with and without Minjingu phosphare rock (MPR) were prepared for use as fertilizers.		Kenya, Uganda, and Tanzania	Improving human welfare and environmental conservation by empowering farms to combat soil fertility degradation through use of agroforestry green manures, farmyard manures, and rock phosphates		N/A
130	What was actually done here? What does "inoculated legumes" mean? LEGUMES ARE TYPICALLY USED TO PROVIDE NATURAL SOURCES OF FERTILIZER.		Organic management of manure application in legume growing	N	P		•Manure management requires planning •Organic forms of nutrients are not plant available while applications made to meet N requirements will generate risks of P losses (manure has near 1:1 ratio of N:P). •Properly inoculated legumes meet their N requirement by fixing atmospheric N and fertilizer inputs need to be adjusted for N credit. •Cover crops capture excess N from prior crops.		N/A	N/A		N/A
131	Take-away lessons: keep manure and animals away from water to prevent nutrients from entering waterways. YES		Managing manure and pasture	N			•Manure management is challenging due to small parcels of land close to neighbors and water resources, especially drinking water wells. •Manure can also be composted. •Composted manure or raw manure piles should be kept away from drinking water wells, ponds, flood plains, and steep ground. •Restrict animals from streams to control streambank erosion, pathogen contamination, and direct inputs of nutrients.		N/A	N/A		N/A

155			Application techniques of manure	N			•The injection of slurry effectively increases the utilization of manure nutrients compared with surface application, thus reducing potential run-off and need for more application. •Eutrophication resulting from emissions can be avoided by applying manure more effectively into the soil. •Slurry injection involves cutting slots in the soils, injecting the slurry and then closing these slots after application. Injecting slurry as opposed to applying it to topsoil makes it is possible to directly reach the active soil layer in order to reduce nutrient leaching. In addition, direct ground injection systems directly inject pressurized slurry into the ground. •Costs associated with better application technology can be high, but costs can be saved through reduction in mineral nitrogen application.	• Decreasing surface application of manure and promoting injection techniques and mulching will immediately decrease leaching into water bodies as well prevent the exposure of manure to the surface run-off and drain flow losses. • Reduced groundwater and surface water pollution from nitrate leaching and phosphate run off. •Using trailing hose technology for slurry application can reduce emissions (e.g. ammonia) significantly. •Trailing hose technology to apply slurry can decrease emission up to 90% when the slurry is worked into the soil within an hour of application. •Reducing ammonia emissions can help to reduce acidification and eutrophication of surrounding ecosystems, including forests and water bodies.	N/A	N/A		
169			Determining the amount of nutrients supplied to soils during manure application helps farmers to judge the amount and ideal timing of additional fertilizers required by the crop.	N			•Determining the amount of nutrients supplied to soils during manure application helps farmers to judge the amount and ideal timing of additional fertilizers required by the crop. •Taking better account of the nutrients contained manure can reduce the need for fertilizer inputs, which in turn minimises nitrate and phosphorus losses. •Excessive application of mineral fertilizer applications is avoided, so optimum economic production level can be reached and soils can be adequately maintained. •The method is most effective on farms where manure is supplemented by mineral fertilizers. •Long-term manure applications can lead to a build up of excessive soil P reserves. By integrating fertilizer and manure application, dentrification, which leads to increased levels of nitrogen oxide emissions, can be minimised as a result of proper scheduling.	•Reduced nitrogen and phosphorus leaching can be expected from this measure, as less N and P are applied to land.	N/A	N/A		N/A
187			Transporting excess manure to neighboring farms	N			•Farms with soils that have high N rates or are located in high risk zones (close to watercourses) transport their excessive organic manures to other farms. •This reduces the pressure to apply manure during high risk periods, thus restricting the nutrient load on the farm site and the risk of diffuse pollution. •The input of nutrients is balanced and the land is given enough capacity to absorb the nutrients.	•This reduces the nutrient load on the farm that has an excess of manure thereby reducing the risk of diffuse pollution. It also enables the remaining manure to be managed in a more integrated way. Cons: • In the case of contaminated manure (e.g. heavy metals, pathogens) pollution might be spread. • This method results in increased transportation which can be linked to potential odor emissions associated with the transport of manure and increased concerns about biosecurity.	N/A	N/A		N/A
191	Explain why nutrient management and manure management are coupled. MANURE IS AN ORGANIC SOURCE OF FERTILIZER. MANGING MANURING FROM LIVESTOCK IS ALSO KEY TO LIMITING NUTRIENT LOADING FROM LIVESTOCK FARMS.		Establishing manure management systems	N	E		•Nutrient management must be coupled with manure management. This includes soil and manure testing in addition to managing the amount, source, placement and timing of nutrient application. •Turkey AnatoliaWatershed Rehabilitation Project: farm-based manure storage platforms with a goal of establishing manure management systems for 10 percent of the households in the project area. •The platforms are also being used for composting. In areas with limited animal numbers per farm, community-scale manure storage/handling facilities may be more economical.		Serbia, Turckey, Moldova	Best Practices for Water Quality Protection and Replication		
224	No direct connection to nutrients MANURE SPREADER IS A TECHNOLOGY TO APPLY MANURE AS A FERTILIZER		Calibrating Manure Spreader	N			•Calibrating a manure spreader to determine the actual rate of manure applied (e.g., in tons or gallons per acre) and adjusting it to obtain the desired agronomic rate for a field or group of fields. •Application rate is defined as the amount of material applied per unit area of land. For manure, it is usually expressed in tons per acre (solid or semi-solid) or gallons per acre (liquid or slurry). •To calibrate a manure spreader, you need reliable estimates of both amount applied and area covered.		USA	Manure Spreader Calibration		

225	Testing is not a best practice in and of itself: needs to be combined with manure management. IT IS. SOIL HEALTH OR NUTRIEN LEVELS ARE KEY. PLEASE PROVIDE MORE SPECIIFCS FROM THE PROJECT.		Manure Testing	N			•Manure testing is the process of evaluating manure nutrient content to provide specific agronomic and environmental recommendations for manure use. •Samples submitted for testing should be representative of manure as it is used/spread. •Multiple samples are generally necessary to better represent variability in manure characteristics. •Composite sampling is the recommended method of addressing variability in manure properties without the added cost of submitting multiple samples for analysis. •Composite sampling involves collecting multiple samples from a single source, thoroughly mixing this material and collecting a sub-sample for analysis		USA	Manure Testing		
227	What is the point of this treatment? NOT SURE. PLEASE RESEARCH.		Treating physical Manure	N					USA	Physical Manure Treatment (Solids Separation)		
229			Treating Swing Manure	N			•When applied to manure pits inside the production facility, aluminum chloride can also reduce ammonia volatilization from the manure and reduce ambient ammonia levels in the production facility. •Aluminum chloride can be added to manure in manure pits inside the production facility, settling ponds or lagoons. •The aluminum chemically binds phosphorus tightly enough to reduce potential losses to surface water through runoff. • This may occur on a regular basis or prior to application of manure as a fertilizer.	•Reducing ambient ammonia levels in the rearing facility can increase weight gains and feed conversions, as well as reduce the incidence of respiratory diseases in animals and their caretakers.	USA	Treating Swine Manure with Aluminum Chloride		
232	This background info could be included in other slurry best practices. Also, grouping slurry practices together could be useful. YES PLEASE		Separating slurry	N			•Slurry separation divides slurry into liquid and solid components. •The liquid part contains lower nutrient concentration and is able to be used at the production site. •The solid component is made up of high dry matter content and high nutrient concentration and can be transported to the other farms. •This can either be done slowly by a weeping wall system or more quickly by mechanical separation. There are a number of different types of mechanical separators including rotary screens, roller presses, screw presses, inclined screens and vibrating screens.			Cost Effective Measures to Minimise Nutrient Pollution		
238	Was an actual management plan developed? What did it entail? PLEASE PROVIDE MORE SPECIFICS FROM THE REPORT.		Manure Management Plan	N			Factors to be managed: •annual amount of manure •nutrient content •maximum annual limits on nutrient application •necessary minimum storage capacity for manure • required and the available areas of land keeping free not suitable areas and buffer zones along all water courses.		Austria	Recommendation on Best Available Techniques at Agro-industrial Units		
279	Same process as slurry separation: should that be included in description? YES PLEASE		Solid/Liquid Waste Separator	N			•A filtration or screening device, settling tank, settling basin, or settling channel is used to separate a portion of solids from a liquid waste stream. •This practice applies where solid/liquid separation will remove solids from the liquid waste stream as a primary treatment process and allow further treatment processes to be applied such as composting and anaerobic digestion.		USA	Conservation Practices		

296			Improving nutrient balances on dairy farms through forage management	N	O		Farmers use dairy cows' manure to improve the quality of the forage grown on the farm for their cows. By injecting manure directly into the soil and feeding the improved forages to the cows instead of importing grains and mineral supplements, excess nutrients in manure can be controlled.	1) The amount of nutrients imported to the form for the cows' diet decreased; 2) the amount of excess nutrients in the cows' manure decreased; 3) rates of N volatilization are greatly reduced	USA			
301			Application techniques of manure	N			This measure involves cutting slots in the soils, injecting the slurry and then closing these slots after application. Injecting slurry as opposed to applying it to topsoil makes it possible to directly reach the active soil layer in order to reduce nutrient leaching. The injection of slurry effectively increases the utilization of manure nutrients compared with surface application, thus reducing potential run-off and need for more application.	Decreasing surface application of manure and promoting injection techniques and mulching will immediately decrease leaching into water bodies as well prevent the exposure of manure to the surface run-off and drain flow losses.	Germany			
302			Avoiding spreading fertilizer and manure at high risk times	N			By avoiding the spreading of mineral fertilizers or manure at high risk times, the nitrate leaching and loss of phosphorus through surface run off is diminished. High risk times include when there is a high risk of surface flow, rapid movement to field drains from wet soils or when there is little or not crop uptake. Additionally, a way to avoid leaching in the winter due to rainfall is to apply nitrogen in the autumn. (This practice generally requires increasing the capacity of manure storage facilities.)	Estimates expect a reduction of the P baseline losses of 50% on the sandy loam and 20% on clay loam soil.	Europe			
303			Avoiding spreading fertilizers and manure in high risk areas	N			(This method is most effective against losses of phosphorus where the primary mechanism of transport is surface run-off.) Never applying mineral fertilizers and manure to high risk areas helps to prevent run-off of nitrate and phosphorus in the watercourses. Risk areas include areas with flushes draining to a nearby watercourse, cracked soils over field drain or fields with high phosphorus number. To determine Phosphorus risk areas, a risk index or specific risk factors can be used.	A reduction or complete avoidance of manure application in such areas reduces the risk of manure or fertiliser draining into field drains and transporting pollutants into surface or groundwater. Furthermore, the method also allows for a reduction in ammonium-N losses and nitrous oxide emissions.	Europe			
333	Good example of expliciting stating impact of best practice on local nutrient load. YES		Transporting excess manure to neighbouring farms	N			Farms with manure surpluses can avoid the need to increase storage capacity be exporting the surplus to neighbouring farmland	This reduces the nutrient load on the farm that has an excess of manure thereby reducing the risk of diffuse pollution. It also enables the remaining manure to be managed in a more integrated way.	Europe			
24	Same as 21		Maximizing use of nutrients by plants	O					Macedonia/Albania	Prespa Lake Integrated Ecosystem Management. Intervention 2: Reducing Environmental Impacts of Agriculture	$13,140,000	
34			Investigating nutrient and pesticide management practices	O					All Danube River Basin	DRP Small Grants 1.2/1.3 (Agriculture)	N/A	
43			Using nutrient models to estimate pathways and emissions of nutrients from point, diffuse and atmospheric sources	O			•Nutrient models were used to estimate pathways and emiisions from point, diffuse and atmospheric sources. •MONERIS nutrient model was adapted to the Danube river Basin. This approach allowed historical estimates to be calculated providing options to establish baseline values in the absence of direct monitoring data. •Model needed extensive data sets (in particular land use and terrain data from remote monitoring)	•Nutrient models have the potential to provide projects with a harmonised approach to estimating nutrient loads and to review different management scenarios for nutrient reduction.	Danube River Basin	DRP	N/A	
113	No best practice associated with this study, just data about carbon content. WERE THERE ANY PRACTICES RELATED		Measuring carbon levels in lake pre-monsoon and during monsoon season.	O			•Measurements of carbon dioxide from the Chilika Lake were taken pre-monsoon and during the monsoon season	•Carbon dioxide efflux during the monsoon season was very high. •Carbon dioxide transported to the lake via river represented only 15 % of the total efflux from the lake. •Remaining carbon dioxide production is derived from trapped organic carbon in the lake and released to the atmosphere instead of being exported to the sea.	India	Ecosystem Modeling for Chilika Lake		N/A

135	Should modeling projects be presented separately from best practices? NO MODELING IS A PRACTICE		Modeling Nutrient Management in Tropical Cropping Systems	O			•A model was developed to apply to farming systems using both organic and inorganic sources of nutrients. •Agricultural Production Systems Simulator (APSIM) was selected because of its use in tropical soil and crop management. •The model provides a framework necessary for simulating the effects of diverse organic inputs on cropping systems found in tropical regions. • Tested and verified models can be a valuable tool in focusing research and ultimately making recommendations for crop and soil management. •For inorganic fertilizer additions, there are still gaps in the ability to simulate short and long term effects of additions of different organic N and organic and inorganic P resources. •The improved management of soil fertility needs to be evaluated from economic, social, and environmental perspectives.	•The model resulting from this research is applicable to researchers and extension services in the tropics.	Kenya, Zimbabwe, Colombia, and Southeast Asia	Integrated nutrient management in tropical cropping systems: improved capabilities in modeling and recommendations (Project no. LWR2/1999/003) funded by: The Australian Centre for International Agricultural Research (ACIAR)		N/A
159			Catch crops	O			•Catch crops help to reduce the mobilization of agricultural pollutants by increasing nutrient uptake and reducing surface run-off and soil erosion. •Catch crops are fast-growing crops that are grown simultaneously with or between successive plantings of a main crop. •The longer the soil is covered with vegetation the smaller is the nitrate leaching.	•Catch crops protect the surface of the soil and catch the extra nutrients. •Catch crops can also improve the soil structure and increase the amount of organic matter in the soil. •Plant cover in winter protects the topsoil of the fields against the erosive forces of rain, melt and runoff waters during winters. This also reduces soil erosion into waters.	N/A	N/A		N/A
171			Introducing nitrogen taxation to create financial incentives for farmers to reduce nitrogen application	O	Q		•Introduction of nitrogen taxation creates financial incentives for farmers to reduce nitrogen application. •This measure is limited in its application and its effectiveness depends on the increase in costs and the size of the farm (very large farms produce enough products to offset increasing costs of fertilizers).	•By reducing nitrogen application, eutrophication and excessive algal growths that results from N leaching can be minimised or avoided. •Groundwater (used for drinking water supplies) contamination resulting from high nitrate content can also be minimised or avoided.	N/A	N/A		
190			Mitigating nutrient loads to water bodies from point-source pollution	O			•A $2.66 million Nitrates Mitigation Investment Fund was established to finance 75% of manure storage costs; •Education and help was provided to the farmers to establish sustainable production and to use available Investment funds; •A CGAP training and demonstration programme to promote nutrient management planning and demonstrate cover crop technologies; •Development and promotion of agri-environment measures (two surveys of producers were conducted and analysed; •cooperation was established with the local community for education and information efforts of the farmers; •work was done to help poultry producers in Varaždin counties; •joint educational activities were carried out with the the energy institute Hrvoje Požar; •cooperation was established with two agriculture high schools in project counties, including a joint initiative between APCP, a local community and a commercial bank to help APCP applicants complete on farm investments; •a water analysis programme began in the pilot counties); •Dissemination of the Code of Good Agriculture Practice (85,000 copies of a brochure were distributed to producers; •20 types of educational and promotional materials — 82,000 pieces in all-- were distributed	•Improved interpretation of the CAGP provisions to ensure farmers' application of remedial nutrient-reduction measures; • Introduction to EU principles of project financing and measures to secure funding from nonbank resources; •Establishment of a programme of day-to-day information visits to producers — more than 1,200 thus far; •Honoring of international Danube Basin and Black Sea protection conventions.	Croatia	Agricultural Pollution Control		$20,000,000
226			Phosphorus Balance	O			•Phosphorus (P) inputs and outputs should be balanced from all sources in a specific component of an agricultural system, such as a field, an animal facility or a farm. •Phosphorus balance is determined by the managed material/nutrient transfers to, from and within a field, an animal facility or farm. •If the flow of P in exceeds the flow of P out, a positive P imbalance will occur and nutrients will be accumulating in that component of the system, contributing to the source of P. This accumulation will often be indicated by excessive soil test levels in the farm fields. •For a farm that specializes in animal production, overall farm balance can be roughly estimated based on animal density or external feed sources.	•This simple classification can be used as a starting point for assessing the nutrient balance for an operation and for helping to determine the need for a more detailed P balance assessment.	USA	Phosphorus Balance		

231			Vegetative Mining	O			•Phosphorus is removed from the soil by removing crop biomass from a site. •On sites where high or very high soil test phosphorus values limit or restrict the continued application of fertilizer or manure phosphorus, a strategy of vegetative mining can help to draw down the soil test phosphorus. • With the removal of greater quantities of a crop from a field, more phosphorus is removed, increasing the impact of vegetative mining on the soil test phosphorus.		USA	Vegetative Mining		
275			Managing nutrient application	O			•The amount, source, placement, form and timing of the application of plant nutrients and soil amendments are managed. •A nutrient budget for nitrogen, phosphorus, and potassium is developed, considering all potential sources of nutrients including, but not limited to animal manure and organic by-products, waste water, commercial fertilizer, crop residues, legume credits, and irrigation water. •Realistic yield goals are established based on soil productivity information, historical yield data, climatic conditions, level of management and/or local research on similar soil, cropping systems, and soil and manure/organic by-products tests.		USA	Conservation Practices		
13	Too general: what were the practices and how was the training executed? IT IS PART OF A PILOT PROJECT WE MANAGED. I CAN SEND YOU DETAILS.		Training farmers to implement organic agriculture practices	P	I	J	•25 farmers were informed and trained in nonpolluting agricultural practices. • Farmers, youth, students and other categories of citizens and agricultural terrains owners were involved in rehabilitation and changing for better the environment.		Moldova	Danube Regional Project (DRP) Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	$10,000	
164			Converting from conventional to organic production	P			•Nutrient input in organic production aims at promoting and maintaining soil fertility rather than crop yield. •Organic production aims at closed nutrient cycles. Nutrient use efficiency is regularly higher and nutrient losses to the environment lower than in conventional production. • Organic farming is expected to reduce risk of N and P losses to the environment, including water bodies. Eutrophication risk is reduced in nearby water systems.	• Current organic farming area in the Baltic Sea drainage basin would reduce Nitrogen input in the region by 2.3% and 1.8% for Phosphorus.	N/A	N/A		Converting an orchard costs £6,000/ha, spread over three years. While a grower's income initially decreased during conversion, about a £5850/hectare decrease over three years. With respect to establishing new orchards, costs vary with respect to fruit grown and are estimated between £3,700-£13,500/ha, which is about twice as much as establishing a conventional orchard.
310			Conversion from conventional to organic production	P			Converting to organic production in order to close nutrient cycles.	Organic farming is expected to reduce risk of N and P losses to the environment, including water bodies. Eutrophication risk is reduced in nearby water systems. For example, organic farming in the Baltic Sea has shown to reduce nutrient and pesticide loads in the drainage basin of the Baltic Sea. Paulsen et al (2002) found that the current organic farming area in the Baltic Sea drainage basin would reduce Nitrogen input in the region by 2.3% and 1.8% for Phosphorus.	Europe			
27			Prohibiting the use of herbicides and arboricides for ditch maintenance of drainage systems	Q					Estonia, Russia	Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Program	$4,770,000	

48			Developing affordable standards for municipal wastewater	Q			•A water quality management plan was developed to be used as a guide for future water management decisions •A joint Bosnian/Croatian Commission was developed with coordination from Montegro to implement the plan • high priority, low cost water capital investments in sewage treatment were developed and implemented to accompany the IDA operation.	Project water quality was improved to meet EU requirements	Bosnia and Herzegovina	Water Quality Protection Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$20,270,000	
124	This needs a direct link to nutrients. SOIL EROSION AND SOIL HEALTH ARE THE LINK.		Integrating insights from ecological and socio-economic theory into watershed management	Q			•Insights from ecological and socio-economic theory which focuses on the ecological underpinnings of watershed management, developing the concepts of scales, lateral flows, and externalities were integrated •The role of government, non-governmental, and research organizations in watershed management was discussed. Presumptions involved with policy making are: •fallacies of watershed and catchment management; •plot level soil erosion rates being used to calculate gross erosion for the watershed, •role of soil erosion from minor uses, •time frame for soil to move from upper areas of the watershed to streams, •seasonal water shortages caused by trees •catchments boundaries used for planning purposes. Property rights and conservations practices are discussed.	•Landcare groups have been effective in implementing watershed project bringing together local policy makers, farmers, and technical agencies as information and knowledge are often the most limiting factors in catchment management. •Roles of external organizations can assist in the solutions: non-government organizations, the state, information brokers, and public investment.	Kenya and Indonesia	N/A		N/A
162	No explanation on how reducing water use affects nutrient loading. IS THERE MORE INFORMATION		Charging for water abstraction	Q			•Charging for ground and surface water abstraction creates an incentive for farmers to reduce water use.	•Water abstraction charges would reduce the amount of water taken out of ground or surface waters, thus reducing the adverse effects of abstraction on the hydrological regime (e.g. aquatic ecology due to changes in flow regimes).	N/A	N/A		N/A
173			Nutrients trading scheme: allocating the total amount of pollutants that enter a water body	Q			•Nutrient trading is a way of allocating the total amount of pollutants that enter a water body. • These trades can take place among point sources; between point and nonpoint sources; or, among nonpoint point sources.	•Potential reduction in eutrophication risks in areas with less nutrient input.	N/A	N/A		N/A
240			Nutrient Trading; Water Quality Trading	Q			Water quality trading: •Farmers receive financial rewards for implementing conservation measures on their farms. •Industrial wastewater treatment plants buy credits generated from these measures to meet their NPDES permit regulatory requirements.	•Treatment plants find it less expensive to pay agricultural producers to implement conservation practices than to upgrade or install new technologies at their plants •Producers get rewarded for their efforts •The environment benefits in multiple ways including water quality, wildlife habitat, and carbon sequestration.	USA	Nutrient Credit Trading--a Market-based Approach for Improving Water Quality		
308	No direct connection to nutrients SAME		Charge for water abstraction	Q	G		Charging for ground and surface water abstraction creates an incentive for farmers to reduce water use.	In some countries there is no charge to abstract water (e.g. Austria). Such a charge would reduce the amount of water taken out of ground or surface waters, thus reducing the adverse effects of abstraction on the hydrological regime (e.g. aquatic ecology due to changes in flow regimes).	Europe			
317			N-Tax	Q	G		Introduction of nitrogen taxation creates financial incentives for farmers to reduce nitrogen application. This measure is limited in its application and its effectiveness depends on the increase in costs and the size of the farm (very large farms produce enough products to offset increasing costs of fertilizers).	By reducing nitrogen application, eutrophication and excessive algal growths that results from N leaching can be minimised or avoided. Additionally, groundwater (used for drinking water supplies) contamination resulting from high nitrate content can also be minimised or avoided.	Europe			
327	Example of statement linking decreased water usage to nutrients MORE SPECIFICS FROM REPORT		Replacing volumetric pricing with per hectare water charges	Q	G		Rodríguez Díaz JA (2004) show that irrigation districts with volumetric (i.e. two-apart tariff) systems in the Guadalquivir basin consume on average 10 to 20% less than irrigation districts with flat rate pricing, thus the negative effects.	Reducing water consumption to only necessary levels reduces runoff and nutrient loss.	Europe			
331	No direct connection to nutrients AGAIN EROSION IS A CONNECTION		Soil Erosion plans	Q	J		By devising national or regional soil erosion plans, activities centred around reducing soil erosion can be streamlined and more effective. Currently a small number of MS are planning to come up with such plans to mitigate environmental issues, for example desertification.		Europe			
10			Safely reusing resources (nutrients and water) for agriculture	R			•Information dissemination and knowledge building was conducted on composting and the safe re-use of nutrients and water in project communities.		Bulgaria	Developing a Model for Sustainable Water and Waste Management for Rural Areas in Bulgaria	N/A	

19			Safely reusing resources (nutrients and water) for agriculture	R			•Trees were planted on degraded lands on the terrace areas and some limited areas in Boianu-Sticleanu and Calarasi-Raul polders •Efficient rehabilitation of the unauthorized waste platforms was demonstrated •Nutrient management at the farm level was demonstrated •Pastures were rehabilitated and grazing managed;	•Production efficiency was improved through cost-effective inputs and better farm management.	Romania	Agricultural Pollution Control Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$11,100,000	
230	No direct connection to nutrients - COLLECTION OF RUNOFF IS THE CONNECTION		Tailwater Recovery	R	U		•A system was planned to collect, store and transport irrigation tailwater for re-use. •Runoff from irrigated land is collected, conveyed, stored and reused. This system normally includes a combination of practices and equipment that collect, convey, store and recycle irrigation runoff water for re-use. •Common components include pickup ditches, sumps, pits, pumps and pipelines.		USA	Tailwater Recovery		
237	No direct connection to nutrients - CONNECTION TO FERTILIZER USE		Reusing Straw	R			• Every year, about 1 million mt of straw is left on the farmland in Shanghai and finally enters the water environment. •Straw treatment/reuse technology prevents straw from being put into the rivers or being burnt and returns straw directly to farmland and to reduce the utilization of chemical fertilizers and pesticides.		China	Shanghai Agricultural and Non-Point Pollution Reduction Project (SANPR)		
178			Reducing the area under autumn plowing in regions susceptible to soil erosion	S			•Activities under this measure include leaving cereal fields under stubble during autumn and winter - covering drainage ways with vegetation using catch crops. •In some countries (e.g. Norway), soil erosion mainly occurs in autumn and spring; therefore, it is important to concentrate soil erosion measures during these seasons. •In exchange for not ploughing during high susceptible seasons, farmers receive compensation for plowing in the spring instead.	•By reducing soil erosion, natural soil fertilitiy is maintained, thus reducing the need for fertiliser application. •Reduction in sedimentation and posible reduction in eutrophication if fertiliser application rates are reduced.	N/A	N/A		N/A
260	No direct connection to nutrients LOW TILLAGE LIMITS SOIL DISTURBANCE AND KEEPS NUTRIENTS ON THE FIELD, BUILDS UP ORGANIC MATTER.		Performing tillage operations below normal tillage depth to modify adverse physical or chemical properties of a soil (Deep Tillage)	S			•Tillage operations are performed below the normal tillage depth to modify adverse physical or chemical properties of a soil.		USA	Conservation Practices		
266	No direct connection to nutrients		Grazing Land Mechanical Treatment	S			•Physical soil and/or plant conditions are modified with mechanical tools by treatments such as pitting, contour furrowing, and chiseling, ripping or subsoiling. •Mechanical treatments such as contour furrowing, pitting, chiseling, ripping, or subsoiling are applied to accomplish the desired objectives and address the natural resource concerns. •Treatments are limited to soils and slopes where surface disturbances will not result in unacceptable levels of soil erosion and/or sedimentation.		USA	Conservation Practices		
312	Good example of expliciting stating impact of best practice on local nutrient load.		Erosion-minimising cultivation systems	S			Using discs or tines to cultivate the soil or direct drill into stubbles (no-till) will maintain organic matter and preserve good soil structure. However, this measure is not suitable for all soil types, e.g. sandy soils, already compacted soil, and certain crops such as potatoes. The best soils for minimal cultivation systems include clays, silty clay loams or clay loams.	Non-ploughing reduces sedimentation and nutrient run-off, as well as soil compaction. This will also improve infiltration and retention of water and thereby decrease total phosphorus concentrations in surface run-off. Furthermore, crop residues limit evaporation, thus retaining water for crop growth. It can also reduce energy consumption and soil compaction from traffic.	Europe			

5	Should international networks be separated out from best practices since they aren't implementable at the local level? NO. IT IS A PRACTICE		Establishing a network for project sustainability	T			•An international platform and network connecting governments, scientific institutions, agricultural extension services and NGOs was established to facilitate continued cooperation and the development of follow-up projects.		Estonia, Latvia, Lithuania, Poland, and the Russian Federation	The Baltic Sea Regional Project, Tranche 1	$12,450,000	
6			Dedicating teams for outreach to farmers	T			•A local project implementation team was established and to work with farms in implementing agro-environmental investments. •The project facilitated pro-environment works and development of local eco-tourism under the coastal zone management activities	•Project activities benefited employment, local business development and income generation. • The increased employment, in turn, is expected to have a positive impact on poverty, particularly in rural areas.	Estonia, Latvia, Lithuania, Poland, and the Russian Federation	The Baltic Sea Regional Project, Tranche 1	$12,450,000	
45	No info for practice. MORE SPECIFICS FROM THE PROJECT		Providing advisory assistance and helping farmers access funding to construct manure platforms and storage tanks	T					Poland	Rural Environmental Protection Project (REPP)	$14,400,000	
52			Publishing good agricultural practices brochure	T			• A national sustainable land management strategy was developed • An educational programme and masters programme on sustainable land management was developed •Two editions of the brochure were produced, and 5,000 copies distributed to stakeholders		Bulgaria	Capacity Building for Sustainable Land Management (SLM) in Bulgaria	N/A	
53			Training government experts	T			•Over 250 experts from regional inspectorates and the National Agricultural Advisory Service were trained during the project.		Bulgaria	Capacity Building for Sustainable Land Management (SLM) in Bulgaria	N/A	
63	How was the community involved? THIS IS FINE		Involving the community in rehabilitation of ecosystems.	T			•Farmers, children, students, the general public and agricultural landowners were involved in environment rehabilitation activities.		Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
64	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
65	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
66	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
67	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	

68	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
69	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
70	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
71	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
72	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
73	64-73 all identical		Community partnerships	T			•Project activities were implemented in partnership with local authorities, farmers and environmental NGOs •Greater responsibility was given to farmers, agricultural landowners, the general public and local councils.	• The achievements serve as an example for other communities.	Danube River Basin	DRP Small Grants: The reduction of nutrient pollution in the Danube Basin through the promotion and use of good agricultural practices	N/A	
98			Community based banana management and group marketing	T			•Bananas are grown as a monoculture in the most fertile soils. •Pseudo-stems were chopped to control banana weevil. •Pseudostems were mulched and applied as crop residues. •Random planted trees offered support for banana trees. • Application of manure increased bunch size. •Beans, pumpkins, and other short term crops were intercropped with bananas. •Rainwater was harvested. •Banana marketing groups were formed.	•Better bargaining power was achieved •Less time spent in marketing •Wealth was uniformly distributed in the community.	Uganda	Transboundary Agro-ecosystem Management Programme for the Lower Kagera River Basin		
99			Introducing mixed farming in traditional pastoral communities	T			•Agroforestry was expanded. •Fishponds were introduced. •Improved livestock breeds were introduced. •Individual and community agroforestry nurseries were introduced. •Bee keeping was introduced. •Mudfish were grown in Lake Victoria.	•Water runoff was reduced and erosion was controlled. •Silt was kept out of water bodies. •Water quality of community water supply improved.	Uganda	Transboundary Agro-ecosystem Management Programme for the Lower Kagera River Basin		
126			Managing ecosystem services, nutrient cycles, below-ground biodiversity, and empowering farmers through long term management experiments	T			•Pearl millet yields in Sahelian soils can be increased by applying P, N, manure, and crop residue to the soil following a cowpea crop. •Advantages were presented to combine organic and inorganic plant nutrients. •Many long-term management trials were established to evaluate P, N, crop residue, soil tillage, and crop rotation on the yields of local crops.	•Rice yields improved with high rates of urea application, 90-120 kg N, doubling the control yields. • Placement of P fertilizer increased P use efficiency. •Large yield increases were found when P, as single superphosphate, tahoua phosphate rock, kodjari phosphate rock, or manure) was placed directly into the hill.	Burkina Faso, Cote d'Ivoire, Ghana, Mali, Niger, Nigeria, Togo, Tanzania, Zimbabwe, Zambia, and Kenya	Tropical Soil Biology and Fertility Institute of CIAT		N/A
233			Systematic On-Farm Individual Advice	T			•Agri-environmental measures are implemented by close co-operation between farmers and advisors. •Advisory services can lead to reducing stocking density, crop coverage over winter, intercropping, fixed value for nitrogen utilization of farm manure, limited nutrient budget, fertilizer plans and nutrient balances.			Cost Effective Measures to Minimise Nutrient Pollution		

270	No direct connection to nutrients AGREED.		Employing IPM strategies (Prevention, Avoidance, Monitoring and Suppression or "PAMS") to prevent or mitigate pest management risks for identified natural resource concerns. (Integrated Pest Management)	T			A site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies are employed to prevent or mitigate pest management risks for identified natural resource concerns.		USA	Conservation Practices		
292			Nitrogen Index: Adapted for Forage Production in Mexico	T			Computerized nitrogen index developed for farmers to determine whether they are over- or under-applying nitrogen and how much soil fertility they are losing. This is calculated based on information the farmers enter into the computerized index regarding their normal practices, the amount of rainfall, the type of crops, etc.	Farmers were given access to this tool.	Mexico			
297			Use of *Nutrient Expert* , a decision suport tool, increased profitability of maize production	T			Maize farmers in Indonesia were encouraged to use a software tool called "Nutrient Expert" to consult them on their nutrient applications.	On average, use of Nutrient Expert recommendations chieved higher yields with less fertilizer. This normally happened through the use of improved timing, generally by increasing the number of split applications.	Central Lampung and North Sumatra, Indonesia			
299			Nutrient management plans for sugarcane in Australia's wet tropics	T			Sugarcane producers in environmentally sensitive areas were given a nutrient management tool that enables adoption of best management practices based on six steps: 1) knowing and understanding your soils; 2) understanding and managing nutrient processes and losses; 3) regular soil testing; 4) adopting soil-specific nutrient management guidelines; 5) checking on the adequacy of nutrient inputs; 6) keeping good records to modify nutrient inputs when and where necessary	Sugarcane farmers improved nutrient management practices and nutrient loading in the coastal plains of eastern Australia (along the Great Barrier Reef) was reduced.	Queensland, Australia			
318			Nutrient Balances	T			Nutrient balances inform farmers on the efficiency of nutrient utilization and help to identify the cropping phases in which nutrients are lost. Accurate fertilizer application, which is based on the crop type, its yield and the characteristics of the parcel to the economic optimum, will ensure that the necessary quantities of the essential crop nutrients are only available when required for uptake by the crop.	Creating a nutrient balance spread sheet helps to accurately account for fertilizer use to decrease application, which helps to keep excess nutrients in the soil to a minimum and reduce eutrophication levels, excessive algal growths, and groundwater contamination. It also maximises efficient use of nutrients already in the soil by ensuring that the soil is in a sufficiently fertile state.	Europe			
7			Diverting urine and installing low flush toilets to remove nutrients, bacteria, and viruses from excreta from the water cycle.	U	V		•Pilot new technologies such urine-diverting toilets, planted soil filters and small-scale constructed wetlands were introduced to meet the requirements of the EU Urban Waste Water Treatment Directive. •These technologies allowed for the removal of nutrients, bacteria, viruses and eggs from excreta. •The ecosan system in the cultural centre consists of 2 UDD toilets, 2 urinals, hand-washing facility; soil filter; experimental garden for urine application.		Bulgaria	Developing a Model for Sustainable Water and Waste Management for Rural Areas in Bulgaria	N/A	
11			Treating and aerating municipal wastewater	U			•Aeration tanks were implemented and operated to reduce nutrient discharges (nitrogen and phosphorous) from Budapest into the Danube River, and consequently into the Black Sea.	• Improved water quality and decreased risk of pollution at 700 potable water wells producing 1.2 million cubic meters of drinking water daily	Hungary	Hungary — Reduction of Nutrient Discharges	$32,350,000	
31			Designing and restoring drainage systems	U	V				Estonia, Russia	Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Program	$4,770,000	
46			Reducing discharges of untreated wastewater	U			• A joint Bosnia and Herzegovina/Croatia working group was established with coordination from Montenegro and Serbia to implement the plan • Information was disseminated in the region was for the replication of project activities at other priority sites in the Balkans	•Nutrient loads from untreated wastewater was reduced. •Environmental conditions in the country improved •International conventions for the protection of the Danube basin and Black Sea were honored.	Bosnia and Herzegovina	Water Quality Protection Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$20,270,000	

47			Developing Wastewater Improvement Plan	U					Bosnia and Herzegovina	Water Quality Protection Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$20,270,000	
49			Monitoring wastewater quality	U					Bosnia and Herzegovina	Water Quality Protection Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$20,270,000	
104	Should monitoring and data collection projects be separate? This does not suggest any sort of action. IT IS A PRACTICE		Water quality monitoring	U			•23 water sampling stations were set up throughout Chilika Lake. •Surface water for sampling was collected from undisturbed waters. •Water quality parameters monitored included: pH, salinity, dissolved oxygen (DO), biochemical oxygen demand (BOD), primary productivity (PP), nutrients (ammonia, nitrite, nitrate, phosphate, and total P), and chlorophyll.	•pH was alkaline and varied widely throughout the lake. •Salinity varied widely throughout the lake. •Phytoplankton utilization in the fresh water zone resulted in the increase of pH, high photosynthetic activity, high nutrients, and phosphate depletion. •Nutrient concentrations were found in the northern part of the lake due to land drainage brought by river systems. •The opening of the new mouth during the experiment caused a rise in salinity, flushed out the sediment load, disintegrated weeds, and increased biodiversity.	India	N/A		N/A
115	Should monitoring and data collection projects be separate? This does not suggest any sort of action.		Water quality monitoring	U			•8 water sampling stations were set-up throughout the entire Chilika Lake. •Two stations were established in each of four sectors of the lake. •Surface water was collected from undisturbed waters. •Water quality parameters monitored included: temperature, pH, salinity, conductivity, dissolved oxygen (DO), biochemical oxygen demand (BOD), alkalinity, nutrients (nitrite, nitrate, phosphate, and silicate), depth, transparency, and turbidity.	•High nitrate concentrations during July and August were related to agricultural runoff through floodwater. •Nitrate concentrations ranged from 0.105 to 5.321 micro-mol/L throughout the sampling duration. •Nitrite showed higher concentrations in May due to its release from decomposed freshwater weeds. •Phosphate concentrations ranged from 0.090 to 0.897 micro-mol/L throughout the sampling duration. The highest concentration was observed July. •The concentration limit of phosphate was below the pollution	India	N/A		N/A
116	Should monitoring and data collection projects be separate? This does not suggest any sort of action.		Water quality monitoring	U			•16 water sampling stations were set-up covering three sectors of Chilika Lake. Surface water was collected from undisturbed waters. • Water quality parameters monitored included: color odor, total dissolved solid, floating materials, suspended materials, temperature, pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand, chlorine content, salinity, nitrate, phosphate, and silicate.	•Nitrate concentrations were found to range from 1.55 to 117.4 micro-mol/L pre monsoon and from 19.48 to 96.21 micro-mol/L in monsoon season and from 10.46 to 94.65 micro-mol/L post monsoon. •The observed nitrate concentrations were much below the WHO upper limit. •Phosphate concentrations were found to range from 0.17 to 1.035 micro-mol/L pre monsoon and from 0.855 to 5.4 micro-mol/L in monsoon season and from 0.19 to 3.54 micro-mol/L post monsoon. •Phosphate levels were also under standard limits, but higher	India	N/A		N/A
117	Should monitoring and data collection projects be separate? This does not suggest any sort of action.		Water quality monitoring	U			•3 water sampling stations were set-up covering three sectors of the western mangroves of Kachchh-Gujarat. • Surface water was collected from undisturbed waters every month for two years. •Water quality parameters monitored included: sediment (for texture analysis), temperature, dissolved oxygen (DO), nitrate, nitrite, phosphate, silicate, and organic carbon.	•Nitrite concentrations ranged from 0.04 to 0.87 micro-mol/L while nitrate concentration ranged from 0.23 to 7.26 micro-mol/L. •Phosphate concentrations ranged from 0.13 to 3.12 micro - gram/L. •High values were seen during the monsoon season which can be attributed to land runoff. •Total nitrogen ranged in concentrations from 0.02 to 1.95 mg/g. •Highest values during the winter and summer are due to the	India	N/A		N/A
128			Managing catchment in high runoff risk locations	U			•Locations with high runoff risk were identified. •Catchment areas were managed.	•Stream waters that move through a retention area can reduce N concentration by 50%.	N/A	N/A		N/A
133	How is village wastewater treated? THIS SHOULD BE ATTACHED TO A PRACTICE FROM CENTRAL AND EASTERN EUROPE		Treating village wastewater	U			•N in human wastewater can be as high as 100 milligram/L. •If not controlled and cared for properly, wastewater can cause severe health risks. •Modern septic tank technology does not remove N. • Wastewater must be treated prior to disposal or reuse. • Wastewater management concerns for villages include disease, system failure, N, cost, and longevity.		N/A	N/A		N/A

163			Managing Drainage Water	U			•The transport of nitrogen from drained fields can be minimized by managing the drainage system such that only the minimum drainage water necessary is allowed to exit the field. •Controlled subsurface drainage intensifies the drainage systems so that drainage waters from the arable areas can be efficiently utilized by the plants. •The runoff of drainage waters is controlled and they are recirculated back to the arable area for irrigation.	•Drainage control reduced the annual transport of total nitrogen at the field edge by 9 lbs. acre-1 year-1 or 45% on average.	N/A	N/A		N/A
180			Removing the direct linkage between drainage systems and watersheds.	U	V		•Drainage of agricultural land using surface ditches or sub-surface tile drains changes hydrological flow paths and rates. •Concentration of flow via agricultural drainage may lead to accelerated runoff rates. This in turn may cause an increased risk of flooding. •Conversely, a general lowering of the water-table can increase soil infiltration capacity which will tend to reduce the frequency of storm runoff. •Occasionally, reductions in peak flows have been observed following drainage activities	•Changes to the hydrological flow paths have a secondary impact on water quality through changes in the transport of nutrients such as N and P. •By utilizing this measure, runoff and risks of flooding can be minimised.	N/A	N/A		N/A
188	Same as 180		Using transverse collector drains to slow the flow of water from down-slope drainage networks	U	V				N/A	N/A		N/A
203			Utilizing hydrodynamic structures to improve storm water quality	U	V		•Devices were designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
206			Treating storm water runoff through bioretention	U			•An excavated pit is backfilled with engineered media, topsoil, mulch, and vegetation. •These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
207			Permeable Pavement and Pavers: reducing runoff volume and treating water quality through infiltration and filtration mechanisms	U	V		•Pavement or pavers reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. •Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
209	How does this affect nutrient content of water? THE MEDIA FILTERS THE NUTRIENTS FROM REACHING THE WATER. THIS IS LIKELY PART OF A WETLANDS CONSTRUCTION SYSTEM		Filtering runoff through sand or organic media	U	V		•Filters capture and treat runoff by filtering through a sand or organic media.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
243	How do these processes reduce nutrient content? THIS IS LIKELY WASTEWATER.		Decentralized Nutrient Reduction: mixing capability to simulate varying waste conditions, optimizing waste to energy process	U			•Mixing capability to simulate varying waste conditions. Solid recovery module: •A centrifuge with a hydraulically driven scroll motor will remove moisture and will prepare feed stock entering the gasifier. •Gasification of waste will be performed and gas measurements will be made to quantify, characterize and optimize this waste to energy process.		USA			
261			Managing discharge from agricultural drainage systems	U			•water discharges from surface and/or subsurface agricultural drainage systems is managed.		USA	Conservation Practices		

277	No direct connection to nutrients. THIS IS RELATED TO STORM WATER		Roof Runoff Structure	U	V		•Structures that collect, control, and transport precipitation from roofs are constructed. •The minimum design capacity for roof runoff structures is a 10-year storm frequency, 5-minute rainfall precipitation event, except where excluding roof runoff from manure management facilities. •In that case, a 25-year frequency, 5-minute precipitation event shall be used to design roof runoff structures. • When gutters are used, the capacity of the downspout(s) must equal or exceed the gutter flow rate.		USA	Conservation Practices		
280			Controlling storm water runoff	U			•The quantity and quality of stormwater runoff are controlled. •This practice applies to sites where stormwater runoff causes or may cause undesirable downstream flooding, sedimentation or channel degradation and/or degradation of surface or ground water quality if left untreated. •This practice may apply both to sites undergoing development as well as remedial work on already developed sites.		USA	Conservation Practices		
44			Reconnecting wetlands and floodplains to enhance ecosystem quality	V			•Wetlands offer natural means to retain nutrients, mitigate floods and improve ecosystem biodiversity. •Reconnection of wetlands and floodplains is being investigated in the Tisza River Basin and the results are linked to the development of an integrated river basing managment plan. •Three demonstration projects investigated different aspects of wetlands / floodplains and their contribution to improved water quality and reduced impacts from floods	• integrating land/water management reduces the impacts of floods and enhances ecosystem quality.	Ukraine, Slovakia, Hungary, Romania, and Serbia	Establishment of a Basin Management Framework for the Integrated Management of the Tisza Transboundary River (Tisza MSP)	$1,950,000	
80			Wetland Stormwater Treatment Areas (STA)	V	W		•Large wetlands are constructed to reduce downstream phosphorus load by retaining phosphorus in soils and biomass of the wetland. •Four Stormwater Treatment Areas (STA) are designed to treat waters flowing from the Everglades Agricultural area. •Three employ Submerged Aquatic Vegetation (SAV) technology to enhance P uptake.	Phosphorus is retailing in soils and biomass of wetland, and SAV technology enhances P uptake	USA	Long-Term Plan for Achieving Water Quality Goals		$132,855,555
102	No direct connection to nutrients AGREED.		Dredging of an artificial mouth for the Chilika Lake	V			•An inlet was dredged in Chilika lake.	•A large improvement in the exchange of water between the sea and the lagoon has been observed.	India	Chilika Development Authority at Magarmukh		N/A
103			Catchment area treatment	V			•Soil conservation measures with were implemented to arrest siltation and eutrophication. •An inlet channel was opened from river Mahanadi to augment floor circulation of water. •Desilting and deweeding activities were conducted.	•Wetland conservation was successful.	India	Integrated Sustainable Environmental Management Programme		N/A
119	No direct connection to nutrients		Restoring Chilika Lake after opening the new mouth	V			•The Chilika Lake was facing ecological and anthropogenic pressure which led to an overall loss of biodiversity and productivity. •In 2000, a new artificial mouth was dredged to the Bay of Bengol to improve the exchange of water. •Field studies were carried out to assess the present status of Chilika Lake and remedial measures.	•Opening a new mouth greatly improved the exchange of water between the sea and the lagoon. •Improved water exchange facilitated auto-recruitment and free breeding migration of the fish, prawn, and crab juvenile into the lagoon, improving fishery resources.	India	N/A		N/A
168	No direct connection to nutrients THIS IS LIKELY WASTEWATER		Implanting gravel and stones in river bed	V			•Implantation of gravel and stones in river beds benefits aquatic ecology and reduces physical pressures on rivers. • Fish species live under stones during the day and under gravel at night, thus this measure can help to protect biodiversity in rivers.		N/A	N/A		N/A
179			Re-meandering	V			•Re-meandering refers to reverting a river to its natural state by re-introducing bends. •This measure can help to reduce nutrient loading to the sea, as a meandering river is longer and contains more biodiversity than a "straight" course river does. •Flora and fauna living in river bends help to uptake excess nutrients in the river.	•Re-meandering reduces non-point nutrient pollution through retention and transformation processes, resulting from rising groundwater levels and increased flooding potential. •Improved water quality. Increases biodiversity in the re-created or newly created bends in the river.	N/A	N/A		N/A
202	No direct connection to nutrients THIS IS LIKELY WASTEWATER		Creating basins to temporarily store runoff and release it slowly via surface flow or groundwater infiltration (Dry [extended?] Detention Ponds)	V			•Detention ponds: Depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		

204	No direct connection to nutrients		Digging depressions to temporarily store and slowly release runoff from storm events.	V			•Depressions were created by excavation or berm construction to temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms using a low flow control outlet. •This releases water over time, drying out between storm events.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
208	No direct connection to nutrients THIS IS LIKELY WASTEWATER		Digging a depression to form an infiltration basin where sediment is trapped and water infiltrates the soil	V			•A depression is dug to form an infiltration basin where sediment is trapped and water infiltrates the soil. •No underdrains are associated with infiltration basins and trenches, because by definition these systems provide complete infiltration.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
254	No direct connection to nutrients REDUCING EROSION		Stabilizing channel beds	V			•Beds or bottoms or channels are stabilized by the establishment of vegetative protection, by the installation of bank protection, or by the installation of upstream water control measures.		USA	Conservation Practices		
273	What are karst areas and how are the sinkholes treated? PROVIDE SPECIFICS FROM THE PROJECT		Treating sinkholes in karst areas to reduce groundwater contamination	V			•Sinkholes in karst areas are treated to reduce contamination of groundwater resources, and/or to improve farm safety. •This practice may be applied as part of a conservation management system in karst topography, which is an area underlain by solutioned carbonate bedrock with sinkholes and caverns.		USA	Conservation Practices		
278	How does capturing sediment affect nutrient loading?		Sediment Basin	V			•Sediment basins are the last line of defense for capturing sediment when erosion has already occurred. •When possible construct basins prior to soil disturbance in the watershed. •The sediment basin must have sediment storage capacity, detention storage and temporary flood storage capacities.		USA	Conservation Practices		
309			Controlled subsurface drainage	V			Installing underground drainage infrastructure controlls the runoff of drainage waters and recirculates them back to the arable area for irrigation. This both reduces the volume of water exiting the land under cultivation and increases the amount of water available to plants on the land.	The transport of nitrogen from drained fields can be minimized by managing the drainage system such that only the minimum drainage water necessary is allowed to exit the field.	Europe			
325	Same as 179, but explicitly states nutrient effect		Re-meandering	V			Re-meandering refers to reverting a river to its natural state by re-introducing bends. This measure can help to reduce nutrient loading to the sea, as a meandering river is longer and contains more biodiversity than a "straight" course river does. Flora and fauna living in river bends help to uptake excess nutrients in the river.	Re-meandering reduces non-point nutrient pollution through retention and transformation processes, resulting from rising groundwater levels and increased flooding potential, thus improving water quality.	Europe			
326			Removing the direct linkage between drainage systems and streams	V			Drainage of agricultural land using surface ditches or sub-surface tile drains changes hydrological flow paths and rates.	By utilising this measure, runoff and risks of flooding can be minimised.	Europe			
334	No direct connection to nutrients DIRECTLY RELATED TO RUNOFF		Use of transverse collector drains to slow the flow of water from down-slope drainage networks	V			Drainage of agricultural land using surface ditches or sub-surface tile drains changes hydrological flow paths and rates. By utilising this measure, runoff and risks of flooding can be minimised.	A general lowering of the water-table can increase soil infiltration capacity, which will tend to reduce the frequency of storm runoff. Occasionally, reductions in peak flows have been observed following drainage activities.	Europe			
2			Sustainable farming practices	W	J		•Two areas of wetlands were restored to increase the retention of nutrients otherwise flowing into the Gulf of Riga and the Curonian Lagoon •Farmers participated in introductory environmental seminars in all beneficiary countries •Farms/farmers participated in EMS courses offered by Baltic Sea Regional Project (BSRP) •Farms/farmers benefited from the BSRP agrienvironmental credit scheme	Economic benefits were obtained by farmers in the Baltic States and Russia due to the agrienvironmental credit scheme.	Estonia, Latvia, Lithuania, Poland, and the Russian Federation	The Baltic Sea Regional Project, Tranche 1	$12,450,000	
8			Household-based planted soil filters and/or constructed wetlands*	W					Bulgaria	Developing a Model for Sustainable Water and Waste Management for Rural Areas in Bulgaria	N/A	
12			Restoring wetlands	W			• Ecosystems were protected at two internationally important Ramsar sites. • Nutrient trapping capacity of the Gemenc and Beda-Karapancsa wetlands was enhanced.	•This project served as a replicable model for the treatment of non-point sources of nutrient pollution using wetlands and floodplains.	Hungary	Hungary — Reduction of Nutrient Discharges	$32,350,000	

33	What were the results of monitoring? PROVIDE MORE SPECIFICS		Rehabilitating wetlands	W			•A small pilot site was created •grass carps were removed •natural wetland vegetation, rooted and floating native reed-grass with high nutrient removal capacities were collected from the surrounding area and was replanted in the pilot site. •Water quality monitoring was taking place at the start and end of project to see if nutrient pollution went down.	• Sewage plant discharge improved • Water quality improvement in future helping local bathing area • NGO made own local radio station that now promotes their work	Hungary	DRP Small Grants: Sződrákos Creek Program – Phase 2 (Hungary - Reduction of Nutrient Discharges - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea)	$4,650	
42			Distributing guidance manuals and pilot demonstrations on land use and wetlands to improve nutrient reduction / retention	W			•6 pilot demonstration sites were operated to demonstrate alternative land management approaches and enhanced wetlands nutrient retention capactiy •A guidance manual provided relative estimates of nutrient retention from various approaches to wetland management.		Danube River Basin	DRP Small Grants: 1.4 (Wetlands pilots - undertaken by WWF-DCP) and 4.3 (Nutrient removal by wetlands - both theory and demos)	N/A	
51			Conserving wetlands	W			•A feasibility study was conducted to rehabilitate, construct and maintain wetlands areas to reduce nutrient loading.		Bosnia and Herzegovina	Water Quality Protection Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$20,270,000	
79			Constructing a floating island vegetated with native plants from post-consumer polymer materials to be placed in ponds or waterways(Floating Treatment Wetland (FTW))	W			•A floating island is constructed from post-consumer polymer fibers and vegetated with native plants. •Placing a Floating Treatment Wetland (FTW) in waterways, ponds, lakes or septic systems allows plant roots to remove ammonia, nitrogen, phosphorus and suspended solids from the wastewater.	•Approximately 80% of the nutrients removed from the water are due to bacteria attached to the plant roots while the other 20% is actual plant uptake.	USA	Floating Island International patented Floating Treatment Wetlands		N/A
83			Living Machine Tidal Flow Wetland	W			•All wastewater is initially treated before entering the Living Machine. •Water flows through a small wetland in which the plant take up	•System decreased biochemical oxygen demand, total suspended solids and turbidity.	USA	Living Machine		N/A
84	insert capacity RESEARCH ONLINE AT WORRELWATER.COM		Living Machine Tidal Flow Wetland	W			SAME AS OTHERS DIFFERENT CAPACITY	•System decreased biochemical oxygen demand, total suspended solids and turbidity.	USA	Living Machine		N/A
85	insert capacity		Living Machine Tidal Flow Wetland	W			SAME AS OTHERS DIFFERENT CAPACITY	•System decreased biochemical oxygen demand, total suspended solids and turbidity.	USA	Living Machine		N/A
86	insert capacity		Living Machine Tidal Flow Wetland	W			SAME AS OTHERS DIFFERENT CAPACITY	•System decreased biochemical oxygen demand, total suspended solids and turbidity.	USA	Living Machine		N/A
87	insert capacity		Living Machine Tidal Flow Wetland	W			SAME AS OTHERS DIFFERENT CAPACITY	•System decreased biochemical oxygen demand, total suspended solids and turbidity.	USA	Living Machine		N/A
88	insert capacity		Living Machine Tidal Flow Wetland	W			SAME AS OTHERS DIFFERENT CAPACITY	•System decreased biochemical oxygen demand, total suspended solids and turbidity.	USA	Living Machine		N/A
89	insert capacity		Living Machine Tidal Flow Wetland	W			SAME AS OTHERS DIFFERENT CAPACITY	•System decreased biochemical oxygen demand, total suspended solids and turbidity.	USA	Living Machine		N/A
90	insert capacity		Living Machine Tidal Flow Wetland	W			SAME AS OTHERS DIFFERENT CAPACITY		USA	Living Machine		N/A
132			Buffers and artificial wetlands	W			Vegetative buffer strips are inexpensive to install and remove some solids from liquids. Different practices include; •grassed waterways •contour buffer •stream riparian buffer.	These buffers impede runoff flow and reduces erosion and promotes infiltration. Plant uptake reduces excess contaminants that reach the water.	N/A	N/A		N/A
167			Establishing wetlands	W			•Constructed or established wetlands can help to capture nutrients from agriculture run-off before entering water bodies. •Wetlands can be natural, artificial, permanent or temporary.	•Wetlands increase landscape diversity by providing habitat for a variety of fish and wildlife species. •Wetlands protect/maintain and improve surface and ground water quality, control soil erosion and provide barriers for flood control. •Wetlands can reduce nitrogen concentrations in water bodies through denitrification. • Wetlands can increase biodiversity and recreational values of landscapes. •Wetlands provide natural flood control in areas that are sensitive to erosion or drought.	N/A	N/A		

194			Restoring wetlands	W			Wetland restoration restores the natural hydraulic condition in a field that had subsurface or surface drainage. Wetland creation establishes a wetland designed to manage water to optimise nutrient reduction before discharge. Created wetlands may have planned/controlled water inputs whereas restored wetlands accept the natural water flow from their catchment. The GEF-World Bank Bulgarian project on Wetlands Restoration and Nutrient Reduction illustrates a cost effective restored wetlands.	•Total nitrogen and total phosphorous removal depends on wetland size compared to flow or catchment area and water retention time, with three-seven days retention as optimum. •The project restored 30 percent more wetlands than planned and will quantify nutrient reductions but is a model with high replication value.	Bulgaria	Best Practices for Water Quality Protection and Replication		
214			Creating and restoring wetlands	W			•Natural/historic functions are returned to a former wetland. • A gain in wetland acres results from restoration	•Nutrients and suspended particles are removed via settling. •Nitrogen is further removed primarily via plant and microbial uptake and the nitrification-denitrification reactions, while phosphorus is further removed by soil sorption.	USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
215			Creating wetlands	W			•Wetlands that did not previously exist are created on an upland or deepwater site. • A gain in wetland acres results from wetland creation	.Nutrients and suspended particles are removed via settling. Nitrogen is further removed primarily via plant and microbial uptake and the nitrification-denitrification reactions, while phosphorus is further removed by soil sorption.	USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
313			Establishment of wetlands	W			Constructed or established wetlands can help to capture nutrients from agriculture run-off before entering water bodies. Wetlands can be natural, artificial, permanent or temporary.	Wetlands increase landscape diversity by providing habitat for a variety of fish and wildlife species. They also protect/maintain and improve surface and ground water quality, control soil erosion and provide barriers for flood control. Additionally, wetlands can reduce N loads by 14 t/year.	Europe			
16			Improving water quality				•Village drinking water quality and hygiene were improved •Terrestrial and aquatic habitats were reconstructed	•health and sanitation improvements were made in villages •Populations of flora and fauna of local economic and social importance increased	Moldova	Agricultural Pollution Control Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$10,740,000	
20	Same as #16		improved water quality						Romania	Agricultural Pollution Control Project - under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea	$11,100,000	
35			BAP 1: Farm Management						Siberia	DRP Small Grants 1.2/1.3 (Agriculture)	N/A	
106			Increased technology						Uganda and Kenya	Development and transfer of conservation agriculture production systems (CAPS) for small-holder farms in eastern Uganda and western Kenya		N/A
111			Develop improved conservation practices						India and Nepal	LTRA-11: CAPS among tribal societies in India and Nepal		N/A
200			Conservation Plans				•Practices other than conservation tillage or no-till, that reduces soil loss to or below tolerance, defined as the maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained. •Nutrient and sediment reductions vary by the land use, e.g. conventional tillage, conservation tillage, hayland or pastureland, in the model that a conservation plan is applied to.		USA	Developing Best Management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake watershed		
314			Implantation of gravel and stones in river bed									
320			Permanent Grassland on erosive areas									
	Color Key											
	Project info too generic: general project name											
	Totally unusable											
	General flag											
	Incompatible cost units											

	Practice not linked to nutrient mgmt.										
	case study 7-2-2		Improving N management and irrigation practices results in efficiency and yield.	?			• Alterations to nitrogen application and irrigation methods were made to increase crop output and nitrogen efficiency. • Previously nitrogen was applied twice a year and furrow irrigation was used • Through the implementation of intense educational programs nitrogen application and irrigation methods were altered. Irrigation improvements include the use of drip irrigation and changes in land practices. Nitrogen application was altered in ways to reduce nitrate leaching, such as applying nitrogen after irrigation.	Yields increased and nitrogen use was more efficient	US SE Oregon and SW Idaho (reasure Valley)			
	case study 7-2-3		The right source and rate of potassium for processing tomato				•Farmers often omitted K in nutrient management in production of processing tomato for years, leading to significant soil K depletion and decreased soil K availability. So, yield and benefit of processing tomato in the northwestern province is often restricted by inadequate K nutrition. •The objective of this study was to Test different types of K fertilizer to	•The most common sources of K fertilizer are KCL, KH2PO4, KNO3 and K2SO4. It was concluded that KCL was the most economical source of K . •The use of KCL resulted in an increase in yields and profit.	, China			
	case study 7-4-2		Nutrient Expert improves grain, profitability and efficiency for maize.				• A dynamic and robust nutrient management approach is essential to increase yields and optimize profits for smallholder farmers practicing within intensified cropping systems. A new fertilizer recommendation method based on yield response and agronomic efficiency for hybrid maize, Nutrient Expert (NE), was tested in North China from 2010 to 2011.	• NE plots had higher grain yields and net profits compared with farmer practice (FP) and the local "optimal" soil test-based recommendation (OPT local). • The yield increase achieved with NE could be attributed to the balanced application of N, P and K based on location-specific crop requirements that take into account yield potential and indigenous soil nutrient supplies.	Xinjiang, North China			
	Bosch Algae		Management of agricultural practices results in declines of filamentous algae in the lake Littoral				• Filamentous algal cover was quantified from 2001 to 2007 in six littoral macrophyte beds. Three of the six sites were next to streams that flowed from regions where extensive agricultural BMPs designed to reduce runoff were implemented in 2003. In those 3 sites the algal cove(compared to pre BMP) was statistically lower 8 of the 11 years (72%). While the 3 non BMP sites had lower algal cover 3 or the 12 years (25%). • BMP site 1: row crops and dairy farming--full spectrum management practices: fertilizer reduction, cover crops, contour strips, reduction in fall and winter manure spreading, various grass filters for runoff from bunker storage of silage and milk house wastes, livestock fenced from the creek and pond. • BMP site 2: row crops—two major efforts: construction of 3 water and sediment control basins and strop cropping designed to retain soils on the watershed. • BMP site 3:grazing pens and water troughs were installed, cattle were fenced and starting in May 2004; and cultural management practices were implemented (i.e. changes in crop rotations, tillage practices) were implemented as fallow land, wheat, and an alfalfa grass miz were converted to soybean production acreage starting in 2003.	In those 3 sites the algal cove(compared to pre BMP) was statistically lower 8 of the 11 years (72%). While the 3 non BMP sites had lower algal cover 3 or the 12 years (25%).	Conesus Lake, NY US			
	Bosch Macrophytes		Responses of lake macrophyte beds dominated by Eurasian watermilfoil to BMP in agricultural sub-watersheds: Declines in biomass but not species dominance				•High biomass and dominance of invasive root species Eurasian watermilfoil was present. • It was tested whether agricultural BMPS designed to reduce tributary nutrient and soil loss from the watershed could reduce populations of watermilfoil downstream in the lake littoral. • Six macrophyte beds were monitored during a 3 year baseline (2001-2003) prior to BMPS and 4 years experimental period after a variety of BMPS were implemented in 3 sub water sheds	• for the 3 BMP beds the biomasss decreased by 30-50% and was statically lower than pre BMP baseline value sin 7 of 11 experimental samples. Non BMP beds the biomass was statistically indistinguishable from pre BMP baseline in all 12 experimental samples. • Milfoil remained overwhelming dominant at all sites in the entire period. These results provide impetus for the use of watershed nutrient management to control the nuisance growth of Eurasian watermilfoil on local scale in lake littoral	Conesus Lake, NY US			

	Lewis Winter Manure		Winter application of manure on an agricultural watershed and its impact on down stream nutrient fluxes				• Multiple BMPS were simultaneously introduced (strip cropping, fertilizer reduction, tiling, manure disposal practices, etc) to determine the impact of concentrated management effort on nutrient and soil loss from one watershed within the Conesus Lake Catchment. • three years in the study there was an opportunity to test the responsiveness on one BMP (winter manure application o fields.) The hypothesis for the alteration was that a change in winter manure applications would impact dissolved and particulate fractions in stream water.	• Significant decrease in winter concentrations of dissolved and particulate fractions, including total phosphorus (TP) soluble reactive phosphorus (SRP), total Kjeldahl nitrogen (TKN), and nitrate (NO3), but not total suspended solids (TSS), were observed. • For the winter manure BMP it was found that the water quality was very responsive to the winer manure application on environmentally sensitive portion of the sub-watershed.	Conesus Lake, NY US			
	Makarewicz Exp Watersheds (2)		The impact of agricultural best management practices on downstream systems: Soil loss and nutrient chemistry and flux to Conesus Lake, New York, USA				•6 small agricultural watersheds in the Conesus Lake catchment were selected to test the impact of BMP on mitigation of nonpoint nutrient sources and soil loss from farms to downstream • Dairy and row crops were the focus of the BMPS. Structural BMPS (construction of manure lagoons, terraces, buffer strips, and sediment control basins) and cultural BMPS(crop sequencing, soil testing, fertilization rates, and tillage practices) were used. aquatic systems.	•Significant reductions in total phosphorus, soluble reactive phosphorus, nitrate, total Kjedahl nitrogen, and total suspended solids concentration and flux occurred by the second year and third year of implementation • One site where structural and cultural BMPS were introduced observed the greatest percent reduction and largest # of significant reduction in analytes	Conesus Lake, NY US			
	Simon Bacteria Nonevents		Impacts of manure management practices on stream microbial loading into Conesus Lake, NY				•E.Coli presence want recorded in two streams feeding into Conesus Lake. Prior to the implementation of BMPS site 1 in which 74% of the surrounding land was agriculture based had a presence as high as 2806 CFU/100 ML exceeding EPA Designated Bathing Beach Standard. Site 2 which only 13% of surrounding land was agriculture has E.coli levels near or below the standard. At site 1 BMPS such as manure mangagment were implemented.	•Over a five year study period there was a major decrease in bacterial loading during nonevent conditions at site 1. The use of BMPS such as manure management practice helped significantly decrease the E.coli levels. While at times site 1 still continued to be a major contributor to E.coli but it was suggested that this was due to surrounding wildlife.	Conesus Lake, NY US			
	Simon events bacteria		Storm water events in a small agricultural watershed: Characterization and evaluation of improvements in stream water microbiology following implementation of Best Management Practices				• Storm water events and nonevent water flows contributed to the annual discharge from Graywood Gully, a sub-watershed of Conesus Lake, whose land use is 74% agriculture. Event storm water elevated in materials associated with particulates such as total suspended solids (total Kjeldahl nitrogen and total phosphorus. Storm water events accounted for 92% of the E.coli loading. Water from high flow nonevents was elevated in soluble components such as sodium, nitrate, and soluble reactive phosphorus. • Structural and cultural BMPS were implemented aimed at controlling nutrient and animal waste pollution have been implemented based on soil testing, evaluation of the P index, and field assessments. Practices included: better manure management, installation of subsurface drainage, and he limiting of all animal access to site of potential runoff, were designed to improve the soil and nutrient and microbial characteristics of the runoff rom dairy farm to the lake.	• The implementation of BMPS in the GrayWood Gully watershed has improved the microbiology of the water decreasing the presence of *E.coli* by 10 fold over a five year period.	Conesus Lake, NY US			
	Zollweg		Detecting effects of Best Management Practices on rain events generating nonpoint source pollution in agricultural watersheds using a physically-based stratagem				•This research documents a methodology for confirming reductions in NPSP resulting from implementation of agricultural BMPS. It employs that methodology to confirm the success of BMPs implemented. •By using the Thornthwaite-Mather procedure to model soil moisture status in addition to even rainfall total, it was possible to remove the major sources of variability, essentially reducing the number of experimental variables to the BMP itself. The main BMP implemented was the reduction of fertilizer and seasonal application.	•Application of this method revealed that BMPS can greatly reduce export of NPSP generated pollutants o receiving waters. Estimates of NPSP reduction range from 53% for soluble reactive phosphorus to 89% for nitrate.	Conesus Lake, NY US			
	Module 3-2-2		Elemental sulphur fertilizer applied to soybean grown on Brazilian cerrado soils is highly effective.				•Soils in Brazil are commonly deficient in both S and P nutrients. As a result crops suffer from deficiency symptoms and in response S is applied in both annual and perennial crops. •Elemental S mixed with bentonite is pastille form (90% S) has been an alternative to more soluble forms of S used to improve the fertility of S in soils.	•In nature S is mainly taken up in the sulfate form, however, when elemental S is applied to the soil autotrophic bacteria oxidize it which results in sulfuric acid which dissociates to sulfate. •Fertilizers based on elemental S and bentonite are known to be effective in correcting S deficiencies with no harm to the environment. In a comparative study, elemental S in pastille form showed similar performance compared to other sources, even with a broadcast application.	Brazil			

	Module 3-2-3		Maximizing sugarcane yield by liming and phosphogypsum aplication				•Acidic soils can limit plant development and yield by decreasing root elongation, causing Al and Mn toxicity and decreasing the availability of nutrients. •Soil pH can be increased by the application of products such as lime and phosphogypsum. Lime corrects soil acidity at soil surface layers. Phosphogypsum (PG) improves acidity effects at deeper soil layers and decreases Al toxicity and adds Ca to lower level soil layers.	•The application of liming and phosphogypsum improves water and nutrient absorption and availability. •When lime and phosphogypsum are used, there is a positive interaction between them that helps ameliorate soil acidity and improve sugarcane yield.				
	Module 5-1-4		Splitting N application improves grain yield and N efficiency for winter wheat				• Nitrogen is an essential contributor to grain yield of winter wheat. An experiment was conducted to study the effect of different basal such as topdressing ratios for N application on grain yield, and N uptake and efficiency. • Basal application occurred at planting and the topdress application occurred at Zadoks GS30 growth stage (about 150 days after planting).	• N application increases grain yield by 20 to 35% and two treatments with N splitting increases 10 to 12% more yield as compared with one application. Nitrogen splitting increases N uptake by 2 to 7% and improves N recovery efficiency by 9 to 25%. • The best splitting treatment occurs with 60 kg N/ha applied basally and 180 kg N/ha as topdressing.	North Central China			
	Module 6-3-1		Phosphorus placement for soybeans grown on tropical soil				• Levels of P are generally low in tropical soils, which limit plant development and yield, specifically for crops with high P demands such as soybeans. • P application must be managed to minimize the competition for P between soil and plant, thus by maximizing P uptake. • P fertilizer was applied broadcast or banded on two different soil conditions: low P (original soil) and high P (having received a previous broadcast application of 200 kg P2O5/ha incorporated into the top 20 cm).	• Soils low in P that used band application allowed for the use of lower rates to obtain the maximum yield. • Soils with a previously incorporated broadcast application were harder to distinguish the method of application (band or broadcast) because the competition for available P is reduced and more P is available for the growing crop.				
	SAIN Update March 2013 EN		UK-China Sustainable Agriculture Innovation Network (SAIN)				•Researchers of SAIN are starting a new project on knowledge policy and practice for sustainable nutrient management and water resources protection in UK and Chinese agro-ecosystems.It will focus on achieving more sustainable management of N and P in agro-ecosystems		UK and China			

Practice Cost	Project manager	Contact phone number	Contact email	Project document URL link																				
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Practice cost - No-anaerobic digester pre-treatment: $1,675,600; With anaerobic digester pre-treatment: $1,634,500	W. Mulbry	1-(301)504-6417	mulbryw@ba.ars.usda.gov	www.elsevier.com/locate/ecoleng																				
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$1,000,000	Natalia Alexeeva	7.812.449.0555	natalia@ctcspb.ru	http://waterwiki.net/index.php/Lessons_from_the_Lake_Peipsi/Chudskoe_Basin_Management_Program																			
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	Lawrence J. Sikora		sikoral@ba.ars.usda.gov	http://www.sera17.ext.vt.edu/Documents/BMP_composting_effects.pdf																				

600,000	DRP - Ivan Zavadsky	n/a	n/a	www.undp-drp.org																				
N/A	Manual R. Reyes			http://www.oired.vt.edu/sanremcrsp/professionals/research-activities/phase4/ltras/ltra12/																				
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Between £10/ha/year and £67.50/ha/year.	N/A	N/A	N/A	N/A																				
				http://nutrient-bestpractices.iwlearn.org/nutrient-reduction-practices/plonearticle.2011-05-02.5730451017/files/Best%20Practices.pdf																				

				http://nutrient-bestpractices.iwlearn.org/nutrient-reduction-practices/plonearticle.2011-05-02.5730451017/files/Best%20Practices.pdf																				
	Owens, L. B. and Bonta, J. V.			http://www.nal.usda.gov/wqic/ceap/CEAP06complete.pdf																				
				Crusciol, C.A.C., et al. 2010. Better Crops with Plant Food. 94:2, pp. 14-16																				
	Jan Thulin		an@ices.dk	http://www.ices.dk/projects/BSRP.asp																				
$10,740,000	Alexandru Jolondcovschi	+373.22.223.106	alexjol@capmu.md	http://www.capmu.md/?a=1&id=60																				
	Janos Tobias	(36-1) 457-3300	tobiasj@budapest.hu																					

	Almir Prljaca	(387-33) 565-400	prljaca@voda.ba	http://gefonline.org/projectDetailsSQL.cfm?projID=2143																			
N/A	Catherine Chan-Halbrendt			http://www.oired.vt.edu/sanremcrsp/professionals/research-activities/phase4/ltras/ltra11/																			
N/A	N/A	N/A	N/A	N/A																			
				(Helsinki Commission, 2007)																			
$10,160,000	Bueno Dickens Sande	(256)77-419-734	bdsande@yahoo.co.uk																				
Using minimal tillage would save an estimated 97 EUR per hectare. That is, about 1950 EUR savings on a 200 hectares farm. The annual cost reduction in direct sowing of annual crops compared to conventional tillage ranges between 40 and 60 EUR per hectare in Southern Europe.	N/A	N/A	N/A	N/A																			
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				(APIB. Agronomic Soil Conservation Measures. http://megapib.nic.in/soil_conservation_control.htm)																					
	Diana Iskreva, Executive Director, Earth Forever Foundation	(359-897) 801-179	diskreva@earthforever.org																						
$10,740,000	Alexandru Jolondcovschi	+373.22.223.106	alexjol@capmu.md	http://www.capmu.md/?a=1&id=60																					
$10,800,000	Franziska Meinzinger		f.meinzinger@tuhh.de	http://www.apcp.ro/																					

$4,130,000	Anita Kodzoman, Programme Officer for Energy and Environment at UNDP	Tel.: (389-23) 249-560	anita.kodzoman@undp.org	http://prespa.iwlearn.org																			
$4,130,000	Mr. Akihito Kono, Programme Officer for Energy and Environment at UNDP CO Macedonia		Akihito.Kono@undp.org	http://waterwiki.net/index.php/Macedonia_-_Integrated_Water_Resources_Management_in_the_Prespa_region_through_participatory_processes_and_dialogue																			
$1,000,000	Natalia Alexeeva		natalia.alexeeva@undp.org	http://www.ctc.ee/index.php?menu_id=102&lang_id=2																			
$1,000,000	Natalia Alexeeva	7.812.449.0555	natalia@ctcspb.ru	http://waterwiki.net/index.php/Lessons_from_the_Lake_Peipsi/Chudskoe_Basin_Management_Program																			
$1,000,000	Natalia Alexeeva	7.812.449.0555	natalia@ctcspb.ru	http://waterwiki.net/index.php/Lessons_from_the_Lake_Peipsi/Chudskoe_Basin_Management_Program																			
N/A	Rodelio Carating		rodelcarating@bswm.da.gov.ph																				
N/A	P. Gopala Krishna		gopalakrishnap@coromandel.murugappa.com																				
N/A	Arthur J Gold		agold@uri.edu																				
N/A	N/A	N/A	N/A	N/A																			

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Reducing N-application by 80% would cost around 87-151 DKK/ha, due to the impact on crop yield.	N/A	N/A	N/A	N/A																			
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				ftp://ftp.fao.org/agl/agll/docs/gepnm.pdf																				
				(Cuttle et al)																				
$36,367	Artur Nebunu		cdrie_cahul@yahoo.com																					
$1,000,000	Natalia Alexeeva	7.812.449.0555	natalia@ctcspb.ru	http://waterwiki.net/index.php/Lessons_from_the_Lake_Peipsi/Chudskoe_Basin_Management_Program																				
	Diana Iskreva, Executive Director, Earth Forever Foundation	(359-897) 801-179	diskreva@earthforever.org																					
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	Robit Jindal			http://michiganstate.academia.edu/RohitJindal/Papers/426577/Carbon_Sequestration_Projects_In_Africa_Potential_Benefits_and_Challenges_to_Scaling_Up																				
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				Cash, D. et al. 2007. Nitrate Toxicity of Montana Forages, Montana State University.																				
				Exner, M.E., H. Perea-Estrada, and R.F. Spalding. 2010. The Scientific World Journal 10:286-297.																				
$4,130,000	Mr. Akihito Kono, Programme Officer for Energy and Environment at UNDP CO Macedonia			http://waterwiki.net/index.php/Macedonia_-_Integrated_Water_Resources_Management_in_the_Prespa_region_through_participatory_processes_and_dialogue																				
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	Forbes Walker		frwalker@utk.edu	http://www.sera17.ext.vt.edu/Documents/BMP_spray_fields.pdf																				
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	Peter Wright		peter.wright@ny.usda.gov	http://www.sera17.ext.vt.edu/Documents/BMP_barnyard_feedlot.pdf																					
	J. Mark Powell		jmpowel2@wisc.edu	http://www.sera17.ext.vt.edu/Documents/BMP_dietary_phosphorus.pdf																					
	G.S. Toor		gurpal@udel.edu	http://www.sera17.ext.vt.edu/Documents/BMP_grazing_management.pdf																					
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	Line, D. E.			http://www.nal.usda.gov/wqic/ceap/CEAP06complete.pdf																					

	Greenwood, K. L.; MacLeod, D. A.; Scott, J. M.; Hutchinson, K. J.			http://www.nal.usda.gov/wqic/ceap/CEAP06complete.pdf																				
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	McDowell, R. W.; Drewry, J. J.; Muirhead, R. W.; and Paton, R. J.			http://www.nal.usda.gov/wqic/ceap/CEAP06complete.pdf																				
	Osei, E.; Gassman, P. W.; Hauck, L. M.; Neitsch, S.; Jones, R. D.; McNitt, J.; and Jones, H.			http://www.nal.usda.gov/wqic/ceap/CEAP06complete.pdf																				
	Jan Thulin		an@ices.dk	http://www.ices.dk/projects/BSRP.asp																				
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600,000	DRP - Ivan Zavadsky	n/a	n/a	www.undp-drp.org																			
978,102	Ms. Ivanka Todorova	(359-2) 940-6643	slm@moew.government.bg																				
	Omer Faruk Mutlu		Farukm@kkgm.gov.tr																				
$5,000,000	Valentin Alexandrescu	+40.242.331.614	valexandrescu@apcp.ro																				
N/A	S. T. Ikerra																						
N/A	Arthur J Gold		agold@uri.edu																				
N/A	Arthur J Gold		agold@uri.edu																				

Annually: €1.94 per ton	N/A	N/A	N/A	N/A																				
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	Bill Jokela		bill.jokela@uvm.edu	http://www.sera17.ext.vt.edu/Documents/BMP_manure_spreader_calibration.pdf																				

	Peter Kleinman		e-mail:pjk9@psu.edu	http://www.sera17.ext.vt.edu/Documents/BMP_manure_testing.pdf																				
	Barry Kintzer		barry.kintzer@usda.gov	http://www.sera17.ext.vt.edu/Documents/BMP_physical_manure.pdf																				
	Doug Smith		drsmith@pudue.edu	http://www.sera17.ext.vt.edu/Documents/BMP_swine_manure.pdf																				
	Thomas Dworak		thomas.dworak@ecologic.eu	http://nutrient-bestpractices.iwlearn.org/nutrient-reduction-practices/plonearticle.2010-04-09.4138430625/files/BS%20case%20studies-%20030108.pdf																				
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				Fields, L. 2011. Cornell University nutrient Management Spear Program, Whole Farm Evaluation Series. / Stallings, C.C. 2005. Virginia Cooperative Extension. / Tylutki, T.P. et al. 2004. The Professional Animal Scientist 20:58-65.																			
				German Federal Ministry of Environment (2006). Evaluation of policy measures and methods to reduce diffuse water pollution - Forschungsbericht 201 24 222/01 - /04 UBA-FB 000727. p.70)																			
				(Cuttle et al, 2007)																			
				(Helsinki Commission, 2007)																			
$4,130,000	Mr. Akihito Kono, Programme Officer for Energy and Environment at UNDP CO Macedonia			http://waterwiki.net/index.php/Macedonia_-_Integrated_Water_Resources_Management_in_the_Prespa_region_through_participatory_processes_and_dialogue																			
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The current nitrogen tax (as of January 2006) in Sweden is SEK 1.8/kg .	N/A	N/A	N/A	N/A																				
	Hrvoje Horvat	385/1/6106-728	hrvoje.horvat@mps.hr	http://nutrient-bestpractices.iwlearn.org/nutrient-reduction-practices/plonearticle.2009-12-06.0475891000/files/24_Croatia.pdf																				
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	Harbans Lal			http://asae.frymulti.com/abstract.asp?aid=24573&t=2																				
				(Dworak et al 2007)																				
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				(http://www.hgca.com/publications/documents/cropresearch/Soils.pdf) (http://www.gardenorganic.org.uk/organicweeds/downloads/mincult.pdf)																			

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				Pampolino, M. et al. 2011. IPNI, Penang, Malaysia. / Witt, C. et al. 2009. IPNI, Penang, Malaysia.																			
				http://www.reefwisefarming.qld.gov.au/pdf/smart-sugar-practices.pdf																			
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				(Evans et al. 1996. Economics of Controlled Drainange and Subirrigation systems.); http://www.soil.ncsu.edu/publications/BMPs/drainage.html																				
				(Hoffmann, et al. 1998.)																				
				(The Macaulay Institute: http://www.macaulay.ac.uk/aweg/hydroirrigate.pdf)																				
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Constructing wetlands costs vary between SEK 2200 - 7600.	N/A	N/A	N/A	N/A																				

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				http://www.ipni.net/ipniweb/portal.nsf/e0f085ed5f091b1b852579000057902e/c13754b8fae4294385257b5800634efc/$FILE/Module%203.2-3.pdf																				
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