

Summary of PRISMA
Report by PRISMA Project Manager

Summary: This report provides members with an overview of the achievements of the PRISMA project. PRISMA commenced in June 2011 and comes to a close on the 30 June 2014. The Broads Authority has received funding of € 876,360 (over £700,000) from the European Regional development Fund to carry out projects that support the delivery of the Authority's strategic objectives highlighted in the Broads Plan 2011. Whilst many of these achievements are physical and quantifiable, there is also an invaluable amount of knowledge gained through cross-border cooperation. As this successful project draws to a close, members' views are sought on the options identified in Section 7, with respect to the residual PRISMA budget remaining in the reserve account.

1 Background

- 1.1 During the last three years the Broads Authority has worked together with three European organisations on the project Promoting Integrated Sediment Management (PRISMA). Partner organisations are from Belgium (Waterways and Seacanal), the Netherlands (Hoogheemraadschap Schieland en de Krimpenerwaard) and France (ARMINES in cooperation with Ecole des Mines de Douai).
- 1.2 On 3 June 2011 the joint application for the Interreg IVA 2 Seas Programme was approved, and the €6.4m project was set in motion. Of this total sum, the Broads Authority was granted € 921,560 of match-funding, based on a 50% rate. This budget was amended in 2014, please see section 4. The projects financial deadline is the 30 June 2014.
- 1.3 For the Broads Authority, the PRISMA project was developed to support the delivery of the Sediment Management Strategy and to tie in with corporate objectives. The project has had an overall focus on navigation related aspects but also conservation, recreation and climate change have played an important role.
- 1.4 The PRISMA project was focussed on actions and investments within three activity packages while other joint studies were carried out linking in to all three activities:
 - Sediment management and dredging
 - Treatment of dredged sediment
 - Reuse of dredged sediment

2 Introduction

- 2.1 In this report an overview is provided of the current (up to May 2014) achievements of the PRISMA project. It also provides an overview of the outstanding actions that require to be achieved before the end of the project (30 June 2014). Considering this report collates three years of collaborative work between many individuals within the Authority and externally, it should be regarded as a concise summary. Detailed reports are available on each individual aspect, pilot and trial on request.

3 Outputs and Achievements

- 3.1 The Broads Authority has carried out six pilot projects to meet the objectives and aims set out:
- 4,500m³ of sediment was dredged with a suction dredger from Upton Little Broad and subsequently treated in geotextile bags. This sediment was spread on agricultural land as a benefit to future cropping.
 - 7,000m³ of sediment was dredged with a bespoke excavator from the 'Old River' Yare at Thorpe River Green. This lightly mercury contaminated sediment was unloaded with the Smith crane and permanently stored at Postwick Tip.
 - 19,600m³ of sediment was dredged with a grab crane from the Lower Bure reaches. This sediment was subsequently unloaded by long-reach excavator and reused in setback areas as part of the flood defence works carried out by the Environment Agency (BESL). The setback areas are designed to establish into reedbed habitat, reduce erosion and aid the stability of the floodbanks.
 - 6,500m³ of sediment was dredged with a long-reach excavator from the River Chet and subsequently reused on the back of the floodbank as future topping-up material and on agricultural land as a benefit to future cropping.
 - 12,000m³ of sediment was dredged from the middle Bure by grab crane and reused in the spit restoration project at Salhouse Broad. The barges were unloaded by long-reach excavator into a concrete pump that filled a geotextile bag retaining structure. Approximately 7,000m² of reedbed was created with a diverse range of plant species.
 - 15,000m³ of sediment was dredged from Heigham Sound by cutter suction dredger. This sediment was reused in the spit restoration project with a gabion basket retaining structure at Duck Broad, where approximately 12,000m² of reedbed is currently being established.

3.2 The Broads Authority also has carried out several trials:

- 3,000m³ of sediment was dredged from Hardley Dyke. The trial involved a submersible pump and bespoke reusable geotextile bag. The project was finalised with a long-reach excavator and the sediment reused on the back of the floodbank as future topping-up material.
- 100m³ of sediment dredged from the River Chet was treated with stabilisers, for example cement, to improve the geotechnical quality of the sediment. The trial was carried out with close links to the Environment Agency as the treated material is aimed to be suitable for the construction of floodbanks.
- Investigations in trialling a decanter centrifuge to dewater liquid sludges produced by suction dredging (no onsite trialling was carried out).
- Submersible pumps were trialled to empty barges filled with dredged sediment.
- A standard concrete pump was trialled for the transport of undiluted dredged sediment.

3.3 The Broads Authority carried out the following investments with part funding from PRISMA:

- The dockyard workshop
- The barge Iona
- A long-reach JCB excavator
- The tug Cannonbrook
- The Smith crane
- The Pennine crane
- Equipment for the Fitters and Technicians, including welders, grinders, drills and a lifting bar.
- Equipment for the Environment Officers, including monitoring sondes and probes
- Equipment for the Rivers Engineer including hand shear vane, levelling stave, slump cone and laser distometer.

3.4 The Broads Authority furthermore achieved the following:

- Presentations of projects during workshops in Rotterdam (x2) and Antwerp
- Cross-border knowledge sharing with organisations in the Netherlands, Belgium, France and Germany
- The project at Salhouse Broad was awarded the following:
 - Commendation from the Canal and River Trust 'Waterways Renaissance Awards 2013'
 - Certificate for 'Working with Nature' from PIANC
 - Candidate for the 'Working with Nature' Award, announced during the World Congress of PIANC (1st week of June 2014)

- Presentations of the achievements at the following opportunities:
 - Institute of Civil Engineers, Norwich
 - Community engagement at Salhouse, Ludham, Reedham, Chedgrave and Loddon
 - Dredgdikes congress, Rostock, Germany
 - PIANC world congress, San Francisco, USA
 - Site visits at Salhouse Broad, Duck Broad and Hardley Dyke

4 Major Modification

- 4.1 On the 22 January 2014 the Major Modification for the PRISMA project was approved by the Steering Committee of Interreg IVA. This modification is a revision of the bid submitted and approved three years ago. It allowed the project partners to modify individual budgets, in order to meet the project requirements at this more developed stage.
- 4.2 Budgets for the purchase of land were redistributed, because the unavailability of land in the vicinity of the river and priority dredge locations.
- 4.3 Budgets were transferred to the lead partner in order for them to pay the project consultants directly, instead of having to go through a reimbursement procedure.
- 4.4 Other budgets, for example staff cost, were changed to match the project requirements without changing the overall project budget.

5 Costs

- 5.1 The below table is split up into eight claims, these claims represent the half yearly calendar periods. The first claim takes into account the preparation period and the eighth claim takes into account the project closure.

	Total expenditure	Total match funding received	Percentage accumulated expenditure
Claim 1	€ 196,275	€ 98,138	10.6%
Claim 2	€ 150,514	€ 75,257	18.8%
Claim 3	€ 304,381	€ 152,191	35.3%
Claim 4	€ 421,430	€ 210,715	58.2%
Claim 5	€ 166,504	€ 83,252	67.2%
Claim 6#	€ 257,006	€ 128,503	85.4%
Claim 7#	€ 203,750*	€ 0	97.0%
Claim 7#	Remaining foreseen expenditure € 52,100*		100.0%
Claim 8#	Management cost eligible until September 2014		< 0.5%
Total	€ 1,843,120	€ 921,560	100%
Total#	€ 1,752,720	€ 876,360	100%

* current expenditure up to 12 May, including estimated staff cost € 72,000, eligible until June 2014.

figures take into account major modification.

- 5.2 The remaining budget for claim 7 and 8 is € 256,610, this represents 14,6% of the total budget.
- 5.3 Currently (up to the 14 May) in excess of 97% of the PRISMA budget has been spent. This figure for claim 7 includes € 131,750 project expenditure and an estimate for staff costs of € 72,000.
- 5.4 The remaining foreseen expenditure for claim period 7 is € 52,100.
- 5.5 The foreseen and eligible expenditure for claim period 8 is management cost in relation to the project closure, this is expected to be less than 0.5% of the budget.
- 5.6 The project is aimed to spend the entire PRISMA budget in order to obtain the full amount of match funding.

6 Conclusions

- 6.1 The match funding granted by Interreg (Regional Development Fund) has allowed the PRISMA project to support the Authority's programme of planned work and dredge and beneficially reuse a total volume of 67,600m³ of sediment.
- 6.2 Through PRISMA a total amount of € 876,360 (equivalent to around £718,815 at today's exchange rate) of external funding has supported the Broads Authority's strategic objectives.
- 6.3 Investments were carried out that allow the Authority to make use of equipment, machinery and facilities for a period beyond the duration of the PRISMA project.
- 6.4 By carrying out the pilots, trials and through cross-border cooperation a significant amount of knowledge has been gained on methods of dredging, sediment treatment and beneficial reuse. This also includes bank restoration techniques with different retaining structures.
- 6.5 Although the physical achievements and investments have been commendable, the knowledge and experience gained through PRISMA is invaluable.

7 Next Steps

- 7.1 On the 30 June 2014 the PRISMA project officially comes to a close, and on the 18 June the final conference is organised. Project management actions will continue until September 2014 in order to draw this project to a close.
- 7.2 It is estimated that the balance in the PRISMA reserve account will be approximately £110,000 upon completion of the PRISMA project and taking into account receipt of the final claim amounts. This projected remaining

balance has arisen due to the Authority making contributions into the reserve in respect of its match funding for the project based on the original project budget. The budget was slightly reduced as part of the major modification transfer to the lead partner (see paragraph 4.3) meaning a slightly reduced match funding requirement for the Authority. A significant balance was established in the PRISMA reserve at the outset of the project (including contributions from existing earmarked reserves) to support the cash flow requirements of the project (as the Interreg funds were usually received six months after the actual claim submission). The Authority allocated a match funding amount which was slightly in excess of the total PRISMA project budget in order to mitigate the risks of any expenditure being disallowed during the claim process. In addition, the Authority was able to retrospectively claim some costs which had been charged directly to service budgets in financial years prior to the project commencing, which has meant that the PRISMA reserve has received claim income against expenditure previously borne by revenue budgets.

7.3 The projected balance in the PRISMA reserve represents a one-off sum of money in 2014/15. It is proposed that this one-off amount be ring-fenced in order to allow a PRISMA legacy to be delivered. Three options have been identified and the committee's views are sought on the identified options in order to detail future plans.

7.3.1 Option 1

Initial ideas have been shared between the PRISMA partner organisations on how to continue the successful working relationship. These ideas involve another Interreg project that aims to support corporate strategic objectives from the Broads Plan 2011, while providing the opportunity to improve current practices of sediment management. The remaining funds will aid as part match-funding for this new project, in order to obtain 50% external funding.

7.3.2 Option 2

The remaining funds could directly be used for further project work that aids the Broads Plan 2011 and the Sediment Management Strategy, for example recreation of further islands to provide reuse of sediment opportunity and restore habitat and landscape features.

7.3.3 Option 3

The remaining funds could be used to renew some of the Authority's aging equipment. Four examples have been provided below with an indicative cost:

A replacement for Grab 7, for example a 22t excavator, £110,000

A new set of 9 Linkflotes with spudlegs, £90,000

A third Wherry, £115,000

A replacement smaller fen excavator, £100,000

This would support the steps being taken to deliver the Authority's Asset Management Plan as previously endorsed by the Committee, however as a one-off amount in 2014/15, this sum will not remove the need to make ongoing revenue provision for the maintenance and replacement of equipment and assets.

Background papers:	Nil
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Broads Plan Objectives:	NA1, CC1, CC3, CC4, BD4,
Appendices:	APPENDIX 1 – Summary of Key Projects

APPENDIX 1, PRISMA Summary of Key Projects

	Upton Little Broad	Thorpe Saint Andrew	Duck Broad	Lower Bure	Salhouse Broad	Hardley Dyke	Loddon
Year of Execution	2011	2011	2010 – 2014	2011 – 2012	2012 – 2013	2013	2014
Site character	Isolated Broad	Urban river front	Large broad and river	Tidal river	Large broad and river	Isolated Dyke	Urban river
Sediment type	Organic	Sandy silt	Organic clayey silt	Silty clay	Organic clayey silt and peat	Silty clay	Organic clayey silt
Environmental Constraints	SSSI	Mercury contamination	SSSI/Ramsar	nil	nil	nil	nil
Type of reuse	Land spreading	Licenced landfill site	Gabion retaining structure	Floodbank setback	Geotextile retaining structure	Land spreading & back of floodbank	Back of floodbank & land spreading
Treatment process	Geotextile bags	lagooning	lagooning	setback	Geotubes and lagooning	Geotunnel	nil
Dredging method	Suction Dredging	Backhoe dredging	Suction Dredging	Grab Dredging	Grab Dredging	Suction dredging Backhoe Dredging	Backhoe Dredging
Transport distance	550m	2750m	800m	4000m	3750m	700m	1400m
Mode of transport	Pipeline	Barge	Pipeline	Barge	Barge & pipeline	Pipeline & none	none
Turbidity impact	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal Moderate	Moderate
Total volume	4,500m ³	7,000m ³	15,000m ³	19,600m ³	12,000m ³	3,000m ³	6,500m ³
Av. Dredging rate per week	190m ³	875m ³	860m ³	750 – 1200m ³	750 – 1200m ³	100m ³ 1000m ³	850 -1000m ³
Cost per m³	£20.53	£11.26*	£23.66	£8.40	£20.83	£27.67	£10.85
Carbon per m³	0.82kg	0.60kg	2.58kg	0.48kg	1.32kg	1.64kg	1.0kg

* not including the cost for tip disposal.