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A fair share of water for agriculture

A strategy for irrigation in Eastern England

A strategy to ensure that agriculture receives a fair share of water resources and uses it in a sustainable and efficient manner

This publication forms part of a project funded by the East of England Development Agency, the European Social Fund, and the Environment Agency to develop a water strategy for agri-business in Eastern England. The project was implemented by Cranfield University in association with the National Farmers Union and RTCS Ltd.

The authors of this publication – Jerry Knox, Keith Weatherhead, and Juan Rodriguez-Diaz (Cranfield University) and Melvyn Kay (RTCS Ltd) wish to make it clear that the content of this publication and the views expressed are those of the authors and do not necessarily represent the views or policies of the organisations listed above.

The authors also wish to acknowledge the valuable contribution made by numerous stakeholders to the development of this strategy. This includes contributions to the preliminary studies on Water Abstractor Groups and the impact of the 2006 drought on the region’s agriculture, and to the stakeholder workshops. The field maps on page 7 were provided by Tim Lacey.

Front cover: Distribution of abstraction licences for spray irrigation in EA Anglian Region in 2006.

A fair share of water for agriculture

Water is essential to farming in Eastern England – one of the driest and most water-stressed regions of the UK. Without it many agri-businesses would simply not survive. Irrigated agriculture supplies the UK’s food market with substantial quantities of high quality potatoes, fruit and vegetables. But increasing regulation, droughts, and the risks associated with climate change all threaten the sustainability of this industry and the rural livelihoods it supports. A strategy is needed to ensure that agriculture receives a fair share of the available water resource and uses it in a more sustainable and efficient way.

Agriculture in the world of water

Irrigated agriculture is an essential part of the rural economy in Eastern England. More than 1000 agri-businesses, both large and small, depend on water to supply high quality produce to the nation’s supermarkets providing over 30% of potatoes and 25% of all fruit and vegetables.

Did you know...

- Irrigated agriculture represents only 1% of total water use nationally.
- In England, irrigated agriculture accounts for only 4% of crop area but 20% of crop value.
- 60% of the irrigated area and 57% of the volume of water used for irrigation is located in Eastern England.

Box 1 Proportion of the total licensed volume for irrigation in EA Anglian Region in 2006 within each water resource category

- Over-licensed 47%
- Over-abstracted 23%
- No water available 21%
- Water available 9%

Irrigated production in the UK does not receive any European subsidy support yet provides substantial benefits. Beyond the farm-gate many local businesses service this industry. They provide equipment and farm supplies, post-harvest processing and packaging, marketing services, transport, and distribution. It is estimated that together the agri-food industry employs over 50,000 people and contributes some £3 billion annually to the region’s economy.

Water is at the heart of this industry – without it many farmers would simply not be able to meet the exacting standards of quality and continuity of supply demanded by supermarkets and consumers – arguably one of the most sophisticated markets in the world. Yet, nearly three quarters of the water volume licensed for irrigation is located within catchments under severe levels of water stress (see Box 1).

Recent droughts and the long-term threat of climate change – with hotter, drier summers, reduced water availability, and increasing water demand – only heighten concerns about the reliability of future supplies for irrigated agriculture. Research confirms that Eastern England will be one of the regions most impacted by climate change.

During periods of scarcity, water for domestic use, industry, and the environment generally take precedence. Coupled with uncertainties about changes in the way water is to be allocated in future, many agri-businesses are reluctant to invest in irrigation infrastructure for the long-term. This can only be to the detriment of this industry.

Some farmers are already taking steps to manage their existing water supplies more efficiently. But there is still much to do. There are many water conservation measures that individuals themselves can adopt. However, there are some steps that individuals alone cannot take because of the complex nature of water resources management. These will need more collective action by stakeholders.

Why not leave it to the market?

Should the market decide the future of farming in Eastern England? The outcome of water shortages may be a shift from intensive high-value irrigated agriculture to low-input cereal production. The consequences of this would be very serious for the many rural communities that rely on the irrigated agri-food industry for their livelihoods.

The strategy... is to ensure that agriculture receives a fair share of the available water resource and uses it in a more sustainable and efficient way.

The way forward

Following extensive consultation with key informants in the agri-food industry, and with other stakeholders with interests in water, three main themes have been identified together with the actions that need to be taken. Each involves some actions that farmers can take independently to improve their on-farm water security. But there are other actions that farmers working alone or in small groups cannot deal with easily. These will need support from the wider stakeholder community.

Together, these actions will help to reduce water wastage, and maximise the value of water for agriculture for the benefit of the agri-food industry, the rural economy, and the natural environment.

Working together

Improving dialogue between individual abstractors, the agri-food industry and regulator.

Making best use of available water

Improving the security of on-farm water supplies and ensuring its wise use.

Developing a knowledge base

Improving water management knowledge and skills training within the agri-food industry.

This booklet describes the visions and actions needed to successfully address these three themes. Although this strategy focuses on Eastern England, many of the measures identified have relevance in other regions of the UK where irrigated agriculture plays a dominant role in the rural economy.
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Working together

Forming Water Abstractors Groups (WAGs) can be one of the most effective ways of sustaining and improving irrigated agriculture – this is based on evidence from the UK and many other countries. WAGs can bring farmers together to defend their right to irrigate, build a communication channel between themselves and the regulatory bodies, foster a commitment among members to use water efficiently, and provide a strong voice to influence future water policy.

Evidence says WAGs are effective

Six WAGs are already operating successfully in the UK – four in East Anglia, one in Lincoln, and another on the River Till in Northumberland. Most formed because of significant threats of water shortages for irrigation in order to lobby the Environment Agency and other stakeholders about the importance of irrigation – something that individuals alone cannot easily do.

Improving dialogue

Most WAGs have now established good channels of communication with the Environment Agency to discuss how best to use limited water resources in their catchment and how to deal with supply issues during times of drought. The Environment Agency is able to ‘talk’ to groups rather than to lots of disparate individuals. In one case this was so effective that a farmer described the 2006 drought as not a crisis but more of a problem to be dealt with through negotiation with the Environment Agency.

Another group produced a valuable report highlighting the importance of water for agricultural production and local employment. Two groups are working with researchers on water budgeting to improve irrigation management. They regularly organise training courses to disseminate information to their membership on water efficient practices and the water resource status in their catchment. They are all actively engaged in the Environment Agency CAMS process in their respective catchments.

The group in Lincolnshire has gone one step further than the rest by taking on a local water management role. They have one abstraction licence for their 19 members who then distribute the water among themselves according to an agreed formula with technical and administrative support from the local Internal Drainage Board.

Spreading the benefits

Forming new WAGs could spread these benefits across the region. But setting them up is not easy – it is not like building a new reservoir or installing new irrigation equipment. Both technical and social conditions must be right. Groups are most likely to form in critical water stressed areas in which farmers have heightened concerns about their future water supplies. An assessment of local water resources and hydro-social factors has identified the catchments in which new groups are most likely to succeed.

Where new WAGs are most likely to form

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Figure 1 shows that in North Essex over 30% of the total volume licensed for spray irrigation lies within areas defined as being over-abstracted. Similarly, parts of the East Suffolk and Cam and Ely Ouse CAMS catchments are also identified as having a significant proportion (approx 20%) of licensed irrigation in over-abstracted areas. From a regulatory perspective, it is these catchments where changes in the nature of irrigation abstraction are considered a priority.

Why not leave it to agri-business?

If water abstractors groups are so important for agri-business then why not leave it to the farmers to organise themselves. Most existing groups formed this way so why not let others follow a similar pathway.

The problem with this is that it took a water crisis to get existing groups started and waiting for the next crisis may not only be too late for many businesses it is also not a good way of planning the future of so many livelihoods.

Without some immediate level of urgency it is unlikely that agri-businesses will form water abstractors groups of their own accord. So there is a case for providing support to farmers to act as a catalyst for group formation. An example of this kind of support is the formation of the WAG on the River Till in Northumberland.

The external catalyst would help to bring people together and facilitate the general development of the group over an initial set-up period. Inputs would include advice and training on group management and administration as well as water matters. New groups would also benefit from the knowledge and experience of the well established groups and so they would be encouraged to work as mentors. Initially one group would be set up as a pilot to test this approach. Once the process is established more groups would then be set up using the experience gained from the pilot.

Vision – To increase water security by improving communications and dialogue between abstractors, the regulatory agencies, and other stakeholders.

Action – Support the formation of new Water Abstractors Groups in water stressed catchments and help existing groups improve their water management skills.

Identifying irrigation abstraction ‘hotspots’

By comparing the location and volumes of water actually abstracted in a recent dry year (2003) against local resource availability, the ‘hotspots’ across the region where over-abstraction for irrigation is occurring can be identified. The most important irrigation over-abstraction ‘hotspots’ are within the East Suffolk CAMS catchment and the Lower River Wisley water resource management unit (WRMU 13) in the Cam and Ely Ouse CAMS catchment.

Although several groups already exist in the Eastern region they are all at different stages of development. Some have grown into very useful communication vehicles for change and development while others are still in an embryonic phase. The existing groups will also need support in different ways if they are to develop further. Most would benefit from advice and training in group management and administration as well as in water management issues.

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Where new WAGs are most likely to form

Figure 1 shows that in North Essex over 30% of the total volume licensed for spray irrigation lies within areas defined as being over-abstracted. Similarly, parts of the East Suffolk and Cam and Ely Catchment Management Authority (CAMS) catchments are also identified as having a significant proportion (approximately 20%) of licensed irrigation in over-abstracted areas. From a regulatory perspective, it is those catchments where changes in the nature of irrigation abstraction are considered a priority.

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The existing groups will also need support if they are to engage with new and embryonic groups to provide advice in a mentoring role.
Water resources in Eastern England are under increasing pressure and so it is incumbent on everyone to use water wisely. When this happens it is a ‘win-win’ situation – domestic users, industry, farming, and the environment all benefit. Most irrigators already aim to do this because saving water can also save money. But much more needs to be done on-farm both to secure irrigation water supplies and to make better use of what is available. It is all about getting ‘more crop per drop’.

**Following the ‘pathway to efficiency’**

The agri-food industry is ‘between rock and a hard place’. On one side are the consumers and the supermarkets using their grower protocols to demand high quality and timely fruit and vegetables which can only be produced with irrigation. On the other side is the regulatory authority with obligations to protect the natural environment from over-abstraction.

**Vision** – To improve the security of on-farm water supplies and ensure it is used efficiently. **Action** – Support the development of new technologies to improve irrigation efficiency and more flexible collaborative approaches that make best use of existing resources.

**What about un-used and under-used licences?**

Even in a very dry year, such as 2003, less than a third of all the water licensed for spray irrigation was actually abstracted. Of course, in some areas the water may not have been available when needed, for example, due to low river flows or low aquifer levels, and additional abstraction would not be welcome in over-abstracted catchments. However, it is believed there is significant scope to increase the allocative efficiency of water for irrigation through local trading, without causing environmental damage. This already happens in other countries. Water trading can also help to move water from low to high-value production, thus maximising the value of water abstracted.

**Box 2 Pathway to efficiency**

**Understanding your system**

**Optimise your soil and water management practices**

**Demonstrate best practice**

**Efficient irrigation**

**Box 3 Pathway to efficiency**

**Making more water available**

**Using existing supplies better**

**Trading, sharing, and conjunctive use**

Subject to hydrological and environmental constraints, there are substantial opportunities to obtain better value from available water by either trading it or sharing it. Trading could be through direct supply, selling licences or renting land. Sharing can involve joint licences or less formal arrangements. Both enhance opportunities for conjunctive use of surface water, groundwater, and reservoirs, thereby increasing reliability. The real opportunities and issues involved in this need to be identified. Support will be needed to identify opportunities to help group water users together and to match buyers to sellers in critical catchments.

**Benchmarking water use**

Experience in Australia and Spain suggests that irrigation efficiency can be significantly improved across specific agri-food sectors (e.g. potatoes, vegetables) by comparing how individual farms perform with industry best practice.

**New/improved technologies**

Efficient irrigation requires the adoption of best irrigation practice using appropriate equipment with accurate water scheduling. Technologies that are most promising include:

- **Water application systems** – optimising irrigation equipment performance such as valve-in-head sprinklers, intelligent rain-guns and booms, and trickle irrigation
- **Improved scheduling using wireless sensors and/or infra-red technology**
- **Reduced energy consumption by improving pump-system performance**
- **Understanding the impacts of poor efficiency on irrigation uniformity and crop production**

**Irrigation is not cheap**

Outsiders often complain that water for irrigation is too cheap. But agricultural abstractors actually pay the same or higher charges than water companies. Pumping, delivering, and storing water costs money. Typically irrigation costs £0.40–0.50 per m³ to apply, and much more if reservoirs are needed. And irrigating is hard work! Sensible farmers don’t waste water.
Making best use of available water

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Making best use of available water

Making more water available

Using existing supplies better

Vision – To improve the security of on-farm water supplies and ensure it is used efficiently.

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Box 3 Modeling the effects of wind on rain-gun uniformity and its impacts on carrot crop production

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Introducing new technologies and management practices developed in more arid countries, together with efforts to bring the average nearer to the best, could provide the keys to success.

Sharing resources

Although water is scarce in many catchments, there are still opportunities for improving sustainable water resources. Surprisingly, most of the water allocated is not actually used even in dry years, due to a wide variety of good reasons. The water is often in the wrong place and/or available at the wrong time. Finding environmentally and financially viable methods of transferring it to where it is needed, or storing it on-farm for later use, would go a long way towards resolving the present water shortages.

Improving efficiency

Internationally, irrigation has a reputation for low efficiency. But good irrigators in England use relatively little water by international standards. However, there is always scope for using less water. Making the maximum use of soil moisture and rainfall, knowing precisely where and when irrigation does have to be applied, and then applying it accurately and uniformly, are fundamental steps in the pathway to efficiency (see Box 2).

Introducing new technologies and management practices developed in more arid countries, together with efforts to bring the average nearer to the best, could provide the keys to success.
Agri-businesses need to stay informed and have access to the latest information at the right time if they are to remain competitive. Yet, in spite of the high priority given to improving water efficiency, it is surprising just how little information and support is readily available. A knowledge base is needed so that agri-businesses can access the latest information to improve their skills and understanding of water management.

### Drawing on the experience of others

Experience in other countries where irrigation is important, such as Australia, Spain, South Africa, the USA, and Israel, has demonstrated the benefits of providing the right information on water management in a form that can be readily accessed by farmers. They use a range of media to provide farmers with practical information on optimising irrigation equipment and practices, computer programmes for irrigation scheduling, and handbooks, fact-sheets and videos on water efficiency, to enable farmers to learn about innovative approaches and help them to implement change on their farms.

They provide training courses to enable farmers to gain certificated qualifications that demonstrate competence in water management that are recognised in the agri-food industry and beyond. They also introduce water management into the curriculum of schools and local agricultural colleges so that farmers of the future and the younger generation in general grow up with a much greater appreciation of the importance of water in food production.

### Adapting to the UK situation

Of course, UK irrigation is not on the scale of Australia or the USA. But a similar knowledge base that captures both the existing information and provides a range of new media would significantly benefit the environmental sustainability and competitiveness of agri-businesses in the UK.

### More training capacity needed

Additional capacity is also needed in the region to deliver training. Most local agricultural colleges do not have instructors with in-depth knowledge and skills in agricultural and environmental water management. Indeed, land-based curricula in most agricultural colleges provide only very basic coverage of such issues. Trainer-training will be needed to build this capacity and to develop appropriate course curricula and training materials.

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### The right information at the right time

Internationally, much information already exists, but it needs tailoring to be of direct relevance to the UK irrigated farming industry. A knowledge base would help to address this current technology transfer gap and support both individuals and businesses to gain better access to water-related information.

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Agri-businesses need to stay informed and have access to the latest information at the right time if they are to remain competitive. Yet, in spite of the high priority given to improving water efficiency, it is surprising just how little information and support is readily available. A knowledge base is needed so that agri-businesses can access the latest information to improve their skills and understanding of water management.

### The right information at the right time

Internationally, much information already exists, but it needs tailoring to be of direct relevance to the UK irrigated farming industry. A knowledge base would help to address this current technology transfer gap and support both individuals and businesses to gain better access to water-related information.

Drawing on the experience of others

Experience in other countries where irrigation is important, such as Australia, Spain, South Africa, the USA, and Israel, has demonstrated the benefits of providing the right information on water management in a form that can be readily accessed by farmers. They use a range of media to provide farmers with practical information on optimising irrigation equipment and practices, computer programmes for irrigation scheduling, and handbooks, fact-sheets and videos on water efficiency, to enable farmers to learn about innovative approaches and help them to implement change on their farms.

They provide training courses to enable farmers to gain certificated qualifications that demonstrate competence in water management that are recognised in the agri-food industry and beyond. They also introduce water management into the curriculum of schools and local agricultural colleges so that farmers of the future and the younger generation in general grow up with a much greater appreciation of the importance of water in food production.
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Vision – To continually improve the knowledge and skills of those engaged in water management in the food and farming industry, to ensure that future water supplies are used wisely.

Action – Support the development a knowledge base to serve the irrigated food and farming industry.

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Adapting to the UK situation

Of course UK irrigation is not on the scale of Australia or the USA. But a similar knowledge base that captures both the existing information and provides a range of new media would significantly benefit the environmental sustainability and competitiveness of agri-businesses in the UK.

They would provide farmers with practical information and expertise. They would provide more detailed information on best practice, and help to develop appropriate course curricula and training materials.

More training capacity needed

Additional capacity is also needed in the region to deliver training. Most local agricultural colleges do not have instructors with in-depth knowledge and skills in agricultural and environmental water management. Indeed the land-based curricula in most agricultural colleges provides only very basic coverage of such issues. Trainer-training will be needed to build this capacity and to develop appropriate course curricula and training materials.

Experience with the LEAF (Linking Environment and Farming) marque demonstration farms in the UK has shown that on-farm commercially-operated demonstrations can be very effective for highlighting and transferring new knowledge and experience between farmers and growers.

Demonstration farms for water would promote good land and water stewardship, help identify alternative approaches to adapting to water scarcity, and show-case new irrigation technologies and practices. They would provide focal points for problem solving, networking, and staff training.

They would also inform and educate a wide range of other stakeholders about the role and importance of agriculture in the world of water. For example, educational field visits, guided tours and Open Days would provide local agricultural colleges, schools, and the general public with new opportunities to discover how water is an essential component in modern agri-food production, helping to grow high quality fruit and vegetables, whilst protecting the environment.

The food and farming industry needs better access to the latest information on all matters relating to water management. It would benefit from better information on agricultural water management, water policy and licensing, and guidelines on optimising equipment, implementing best management practices, identifying opportunities for water saving and conducting water audits.

Most farmers and growers are familiar with internet services and so the web and email provide the ideal vehicle to deliver high impact media such as fact-sheets, videos, programs, newsletters, and research notes.

An internet based ‘one-stop-shop’ for information and advice on water management would significantly contribute to skills development within the agri-food sector. This would also support the delivery of professional development training.

Professional development training is needed both for farmers and trainers. Farmers need to continually improve their technical knowledge and skills in water management through training workshops, short courses, technical meetings and conferences. Initiatives to date have been good but limited in scope. They need promoting across a much wider audience and target catchments where water resources are critically stressed. Training is also needed for those who provide the training. Local agricultural colleges can provide farmer training but they will need to extend their land-based curricula to include both agricultural and environmental water management.

Building training capacity

A training needs assessment study is required to address the demand for training from farmers as well as the ability of organisations in the region to supply this training.
Implementing the strategy

The strategy described in this booklet proposes a rational way forward to help reduce water wastage and maximise the value of water used in the agri-food industry in Eastern England. It sets out what needs to be done both by individual farm businesses and the wider agri-food industry. In order to ensure that this strategy is successfully implemented across the region, a ‘roadmap’ for implementation is needed that identifies priorities and time-scales.

Water for agriculture needs a ‘champion’

Agriculture has many champions but it does not have one for water. Most existing organisations in the agri-food industry are commodity or business focused. For example, the levy boards look after cereals, potatoes, sugar beet; and the processing and marketing organisations take care of fruit and vegetables. The CBI, CLA, NFU and others represent agri-business and land ownership interests. They all recognise the importance of water but they deal with it in their own way, usually with a specific water agenda depending on their business sector focus.

Bringing fragmented efforts together

Many of the stakeholders involved in this study recognised that all the efforts to reduce water wastage and maximise the value of water made by the various organisations, though laudable, are disconnected. They arise at best patchily but at worst they lead to unnecessary duplication of effort, inefficient use of limited resources, and most importantly a fragmented and potentially weak lobby for the critical resource on which they all depend.

The stakeholders recognised that in order to successfully implement this water strategy for the benefit of all those who depend on water, there needs to be a greater degree of collective effort. One widely endorsed view was the need for a ‘water champion’ who would specifically focus all the agricultural water activities of the various stakeholder organisations in a more co-ordinated manner and continually encourage them to drive this water strategy forward – it is after all in their best interests as users.

Another example is the development of new WAGs in water short areas. This needs pilot group studies now and will be an ongoing project spread over many years. The ‘roadmap’ below summarises the key activities outlined in this strategy and establishes the priorities.

For example, there is a high priority for a study to evaluate the benefits associated with shared reservoirs. This will be of relevance to agri-businesses and will also provide new information for government agencies to guide the implementation of the new Rural Development Programme for England (RDPE). Another example is the development of new WAGs in water short areas. This needs pilot group studies now and will be an ongoing project spread over many years. The ‘roadmap’ below summarises the key activities outlined in this strategy and establishes the priorities.

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An organisation similar to the one proposed has been working very successfully in the environmental water sector for many years – this is the River Restoration Centre (RRC) hosted at Cranfield University. It is a national information and advisory centre that promotes all aspects of river restoration and sustainable river management. It is managed by a panel of stakeholders. This organisational experience could prove invaluable for setting up an Agricultural Water Saving Centre.

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This strategy provides, for the first time, an integrated and coherent framework to help secure a fair share of water for agriculture in Eastern England. It already has the tacit support of those stakeholders involved in its preparation and this has prepared the ground for its wider acceptance at grass roots across the region.

All the activities outlined in this strategy are important but some require more urgent attention than others. Some are short-term activities and have either a local or a regional focus while others have much longer time-scales and may require national support.

Developing a knowledge base

This will act as a catalyst for setting up and supporting the development of Water Abstractors Groups (WAGs) in selected water stressed catchments. It would coordinate studies on key issues such as shared – reservoirs and water trading, harmonise professional development training and set up and manage a web-based information gateway and a water benchmarking system. Whose additional resources or technical expertise are needed the Centre would commission others to undertake specific work packages identified and developed in line with the water strategy.

Taking action

The key to successfully implementing the strategy lies in getting financial support. Core funding will be needed to establish an Agricultural Water Saving Centre. This could be sought from the stakeholder organisations that will benefit from the Centre but for various reasons it is unlikely that they will immediately come together to do this. Indeed one of the first functions of the Centre will be to work as a catalyst to bring all the parties together. For this reason core funding is best sought from a development organisation with broad regional interests and whose funding priorities lie in developing and supporting projects that help to sustain the rural economy.

The various activities of the Centre will also need funding but this would be sought on a project-by-project basis. Funding would come from organisations that have specific interests in the project outcomes. It is anticipated that the Centre will need core funding for a minimum period of three years, after which it is expected that it will be self-financing.

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Water for the future

Water is likely to remain a critical issue in Eastern England for the foreseeable future and a ‘water champion’ will help to ensure that the agri-food sector continues to receive its fair share of water. Over time, the activities of the Centre could evolve and develop into an Agricultural Water Saving Trust for the region. Indeed it could be a model for knowledge transfer and information exchange for irrigated agriculture across the whole country.

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An Agricultural Water Saving Centre

An Agricultural Water Saving Centre would provide the focus. It would bring stakeholders together and champion the efficient use of water in agriculture. This does not necessarily mean setting up a new organisation. It would initially comprise an individual hosted and supported administratively by an existing stakeholder organisation. Additional staff would be seconded from other organisations as the needs arise. Developing a Centre slowly and organically in this way would greatly increase the potential for integrating the various actions needed to implement the strategy and for disseminating information on water saving issues to all stakeholders.

The Centre would have a mandate to operate independently of its host, operating under a panel of representative stakeholders to oversee and manage its activities. The Centre would undertake several functions. It would act as a catalyst for setting up and supporting the development of Water Abstractors Groups (WAGs) in selected water stressed catchments. It would coordinate studies on key issues such as shared – reservoirs and water trading, harmonises professional development training and set up and manage a web-based information gateway, and a water benchmarking system. Where additional resources or technical expertise are needed the Centre would commission others to undertake specific work packages identified and developed in line with the water strategy.

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Develop an Agricultural Water Saving Centre

Review the role of WAGs

Establish a new pilot WAG

Provide ongoing support to existing WAGs

Establish other ‘virtual’ WAGs in the region

Working together

Review the business benefits of shared reservoirs

Benchmarking water use

Identify and evaluate new technologies

Making best use of available water

Promote water trading and conjunctive use

Establish a demonstration farm/s for water

Develop a web-based information gateway

Promote professional development training

Developing a knowledge base

Timeline

2008

2012

Taking action

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This publication can also be downloaded from the UKIA website – www.ukia.org

A fair share of water for agriculture

A strategy for irrigation in Eastern England

A strategy to ensure that agriculture receives a fair share of water resources and uses it in a sustainable and efficient manner

This publication forms part of a project funded by the East of England Development Agency, the European Social Fund, and the Environment Agency to develop a water strategy for agribusiness in Eastern England. The project was implemented by Cranfield University in association with the National Farmers Union and RTCS Ltd.

The authors of this publication – Jerry Knox, Keith Weatherhead, and Juan Rodriguez-Diaz (Cranfield University) and Melvyn Kay (RTCS Ltd) wish to make it clear that the content of this publication and the views expressed are those of the authors and do not necessarily represent the views or policies of the organisations listed above.

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Front cover: Distribution of abstraction licences for spray irrigation in EA Anglian Region in 2006.