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## ***A new Critical Source Index Area for Ireland***

### **Description of Work**

This work entails the development of a GIS-based method for identifying areas that are likely contribute disproportionately to phosphorus losses from farmland – these are termed Critical Sources Areas (CSA's). When fully developed this method would enable agricultural advisers and agri-environmental planners to quickly and easily identify the CSA's on a farm so that they could be mapped and considered in the preparation of Nutrient Management Plans for the farm. This approach could be used to focus mitigation measures on these areas while also identifying the least risky parts of the farm for nutrient application during risky parts of the year. This would facilitate the management of the farm for intensive production on the majority of the area for most of the year while using a small area to mitigate the risk of phosphorus loss during the risky parts of the year. This type of strategy could be very valuable in facilitating sustainable intensification of production.

### **International Context**

This work is at the forefront of what is being done internationally and compares very favourably with efforts in Europe, North America, New Zealand and Australia. Interactions with the leading researchers internationally who work in this area have enhanced the work while indicating that in many respects the sophistication and potential of this approach is ahead of theirs.

### **Opportunities**

The development of this GIS-based CSA identification approach to a level that would allow it to be used routinely by advisers and planners offers a great opportunity to advance Irish agri-environmental planning and management. The recent launch of the NMP Online software package represents a big advance in making nutrient management advice more accessible to farmers and more quick and accurate for professional staff to prepare and deliver. This CSA identification method could be added to the Online NMP package thus added substantially to the potential of the package to support farmers in making better decisions around the management of nutrients on their farms. The Online NMP planner currently tells the farmer what nutrients to apply to each field to meet crop demands. With the addition of the CSA identification module the package would produce a plan that would tell the farmer which parts of the farm to avoid applications of nutrient on during risky times of the year; which parts of the farm to target for mitigation measure e.g. increased set-back distances along parts of watercourses for slurry application and which parts of the farm are safest for applications during risky periods. Teagasc could lead the field internationally in supporting sustainable nutrient management and intensive production.