

COST 0804 FORSYS Thessaloniki

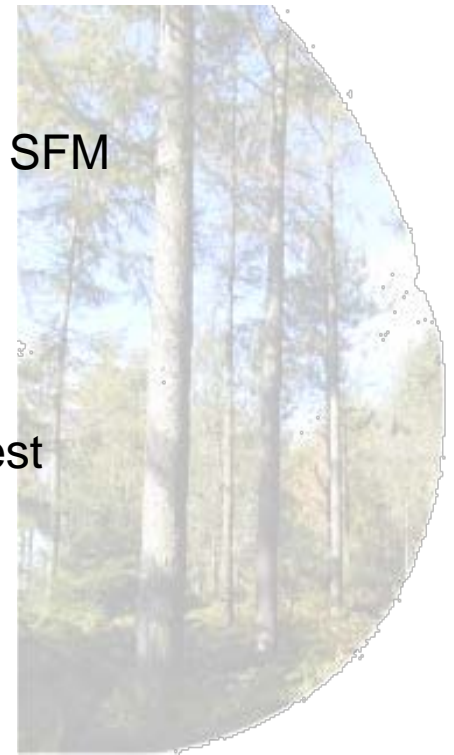
WG 1 presentations

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PractiSFM

- A multi-resource inventory protocol, that:
 - uses Criteria and Indicators identified in the Irish National Forest Standard
 - is compatible with traditional inventory practice
 - is compatible with the National Forest Inventory
 - produces relevant, replicable and credible data for SFM
- A prototype Decision Support System that allows for:
 - analysis and evaluation of multi-resource data
 - the creation, analysis and (management plans)
 - the projection of the future development of the forest
- Multi-resource inventory protocol + DSS = **PractiSFM**



Microsoft Excel Container Application

PsfmProg.xls

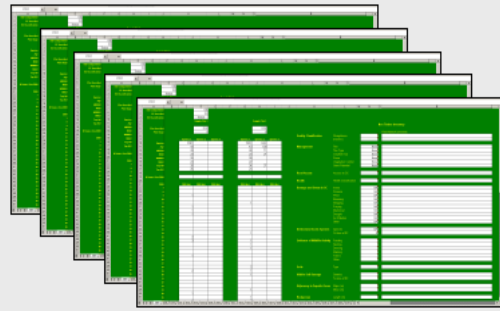
1. Open PsfmProg.xls and initiate PractiSFM DSS program within Microsoft Excel. PractiSFM Menu controls program functionality and invokes all program dialogs, functions and subroutines

Inventory/Forecasting - Management Options - Goal Analysis - Financial Analysis - Map - SelectedOptions

2. Menu invokes inventory dialogs, functions and subroutines

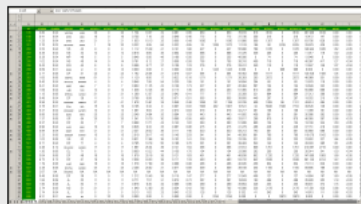
InventoryProcess.xls

3. InventoryProcess.xls procedures create stand multi-resource inventory worksheets



Stand multi-resource inventory worksheets

4. InventoryProcess.xls procedures summarise stand level multi-resource inventory data to RESULTS worksheet

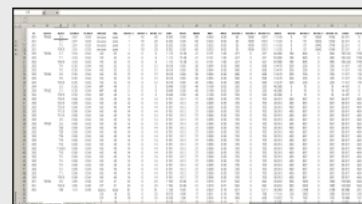


RESULTS worksheet

5. Menu invokes forecasting dialogs, functions and subroutines

Forecast.xls

6. Forecast.xls procedures invoked to produce OptionsMatrix Worksheet utilising stocking and other stand parameters from the RESULTS worksheet

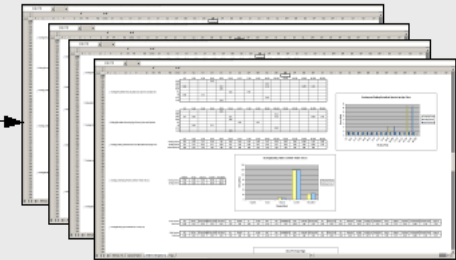


OptionsMatrix worksheet

psfm.xls

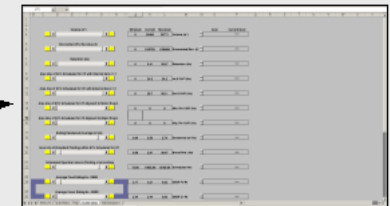
7. Menu invokes simulation, goal analysis, map and cash flow dialogs, functions and subroutines

8. psfm.xls procedures invoke simulation and production of SelectedOptions or management scenario worksheets for the 10-year planning horizon



SelectedOptions worksheets

9. Invocation of psfm.xls code creates GoalAnalysis and controls GoalAnalysis worksheet functionality for analysis of tradeoffs between competing objectives and different scenarios



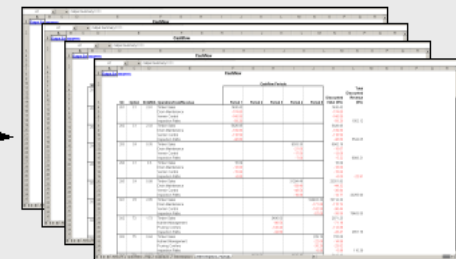
GoalAnalysis worksheet

10. psfm.xls procedures load graphic files and map stand level attributes and management options from the SelectedOptions worksheet



Map worksheet

11. psfm.xls procedures control subroutines, functions and dialogs to produce one or more cash flows and operation plans automatically based on the management options in the SelectedOptions worksheet



Cashflow worksheets

Development team: Maarten Nieuwenhuis (PI), Frank Barrett (PhD student), Paddy Purser (management consultant); now also Marie Doyle (PhD student) , Forest Service, and 1 management company

IT environment: PC based system on Excel platform, Visual Basic

Type of tool: desk-top application (in the process of transferring it to web-based with help of Computer Science Masters programme)

IT components: data bases, basic graphics

Techniques: yield modelling, forecasting, goal seeking, interactive mapping

User friendliness: menu system, 'help' system: not fully completed

Development methodology: ad-hoc, resulting from student/consultant feed-back

Modelling techniques for IT solutions: automation of manual processes, translating criteria and indicators into quantifiable and accessible parameters

Transfer process: workshops, presentations. Individual sessions with management companies.

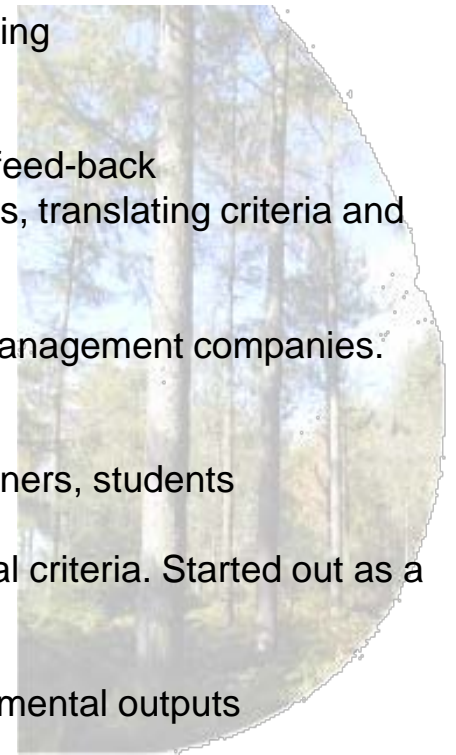
Maintenance: through COFORD? Not certain.

Stakeholders in development: Forest management companies, landowners, students

Specific SFM aspects: integration of economic, environmental and social criteria. Started out as a pure economic analysis tool

Contribution to SFM: equal importance of economic, social and environmental outputs

Recommendations for SFM DDS development: involvement of practitioners and regulatory agencies.



PractiSFM II

Project Partners

- University College Dublin – researchers
- Purser Tarleton Russell Ltd. – forest management company
- Forest Enterprises Ltd. – forest management company
- Green Belt Ltd. – forest management company
- Geoffry and Charles Tottenham – forest owners

Project Consultant

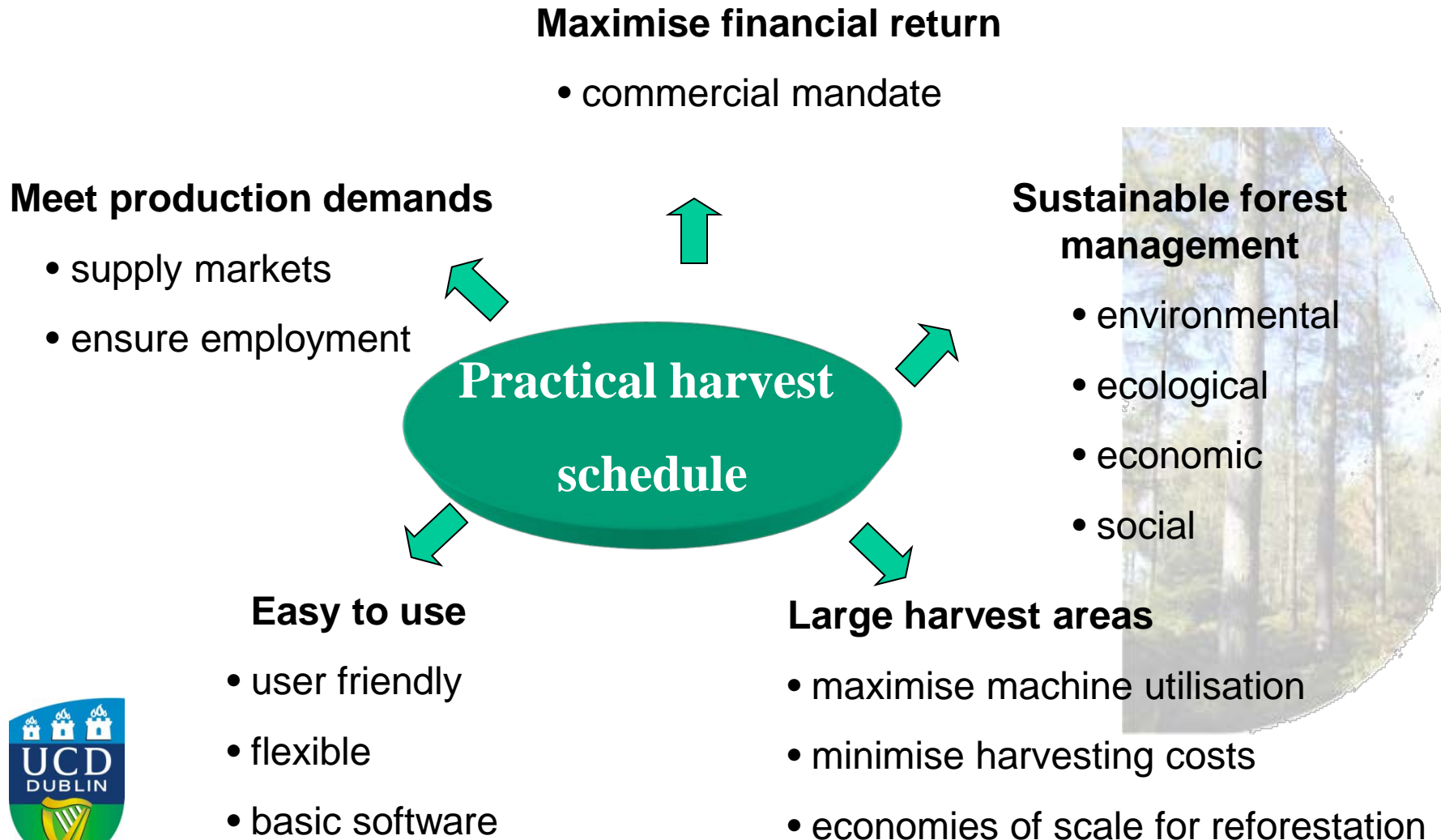
- Dr Frank Barrett, Forest Service

Web-based application

- Keith Finglas, Managing Director Innovation Delivery Ltd.
- School of Computer Science and Informatics, UCD



MIPS SFM – Harvest scheduling under SFM conditions



Development team: Maarten Nieuwenhuis, UCD (PI), Dermot Tiernan, Coillte (Manager and PhD student)

IT environment: PC based system, Excel platform, What's best optimisation

Type of tool: desk-top application

IT components: GIS, data bases

Techniques: forecasting, LP and MIP optimisation

User friendliness: basic Excel system; interface not fully developed

Development methodology: ad-hoc approach, based on available technology

Modelling techniques for IT solutions: automation of manual processes, translating and integration of criteria and indicators into quantifiable and accessible model parameters

Transfer process: within company hands-on training by Dr Dermot Tiernan

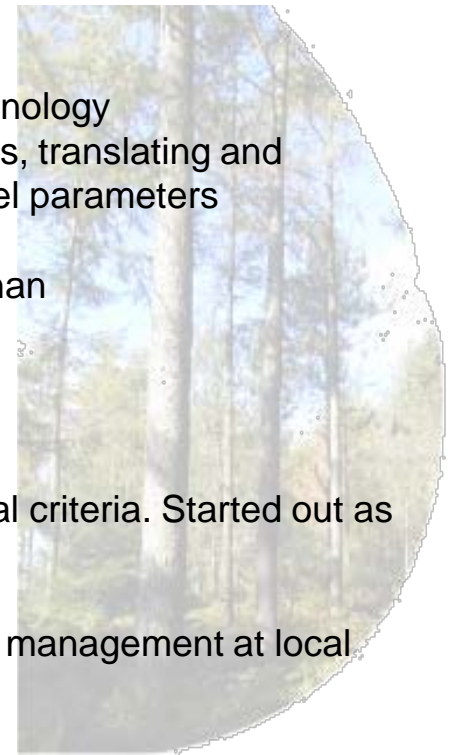
Maintenance: within company through Dr Dermot Tiernan

Stakeholders in development: Coillte Teoranta (State forestry board)

Specific SFM aspects: integration of economic, environmental and social criteria. Started out as an economic analysis tool .

Contribution to SFM: moving from pure economic management to SFM management at local level

Recommendations for SFM DDS development: work with practitioners within relevant organisations



Other systems developed in UCD

ForestGales – windthrow risk model, based on logistic regression. Predicts critical height at which stands will suffer significant windthrow damage. User-friendly interface. Available through COFORD.

ForestFire – fire risk model based on Meteorological and historic fire data and logistic regression.

GrowFor - dynamic yield models for Irish forests. User-friendly interface. Available through COFORD. Further developments to include a wider range of species and mixtures.

WestForest – DSS for sustainable management of peatland forests and landscapes. Under development by UCD and Coillte, based on GIS and cellular automata.

HSS (Harvest Scheduling System) – national timber harvest and transport DSS for Coillte. Economic modelling, using LP and MIP for national and local solutions. Used for ‘what if’ analysis for location of new processing industries and for rationalisation of sawmilling sector.

