General information

Description	Wind damage risk model for forests in Spanish Basque Country incorporated in an Excel spreadsheet
Geographical area	Northern Spain, with a special focus on Basque Country
Group of tree species	*Pinus radiata*
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Tool type	Model
Tool format	Integrated software
Language	English
Risk management plans to which the tools can be added	Plan de gestión de tormentas en relación a los bosques – País Vasco
Risk management plans link	https://plurifor.efi.int/wp-content/uploads/WP2/plans/storm-risk-plan_ES.pdf
This tool is…	☒ an improved tool
Original tool of which this one is an improvement	Hale, S., Nicoll, B., Gardiner, B., (2015) ForestGALES - A wind risk decision support tool for forest management in Britain: User Manual, Version 2.5. Forestry Commission, Edinburgh, UK https://www.forestry.gov.uk/forestgales

Topic

Risk	Storm		
Risk component	☐ hazard	☐ impact	☒ vulnerability
Risk area	Risk assessment		
Risk phase	Prevention		
Risk phase (alternative terms)	Preparedness		
Level	Regional		
Sendai priorities	☒ Priority 1: Understanding disaster risk ☐ Priority 2: Strengthening disaster risk governance to manage disaster risk ☐ Priority 3: Investing in disaster risk reduction for resilience ☐ Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction		
Contribution to Sendai targets	☐ Reduce global disaster mortality ☐ Reduce the number of affected people ☒ Reduce the direct disaster economic loss ☐ Reduce disaster damage to critical infrastructure ☐ Increase the number of national and local disaster risk reduction strategies ☐ Enhance international cooperation to developing countries ☒ Increase availability of and access to multi-hazard early warning systems and disaster risk information and assessment		

Description and analysis

Summary
This tool is a version of the stand-alone computer model Basaize incorporated in Excel to allow easy incorporation with existing and new growth tables for *Pinus radiata*. It allows calculation of the vulnerability and risk of damage to forest stands from storms as a function of age, stand management, and location

Place in national/regional policy
At present it is not integrated in regional policy. The purpose was to develop a simple to use tool that could be easily connected to forest growth tables.

Goals and achievements
This is exactly the same tool as Basaize but included in Excel. Currently it only has growth tables for radiata pine but in fact any growth table for the species included in the stand-alone version of Basaize can be added.

Stakeholders involved
A workshop was held with forest representatives from all three provinces of Álava, Biscay and Gipuzkoa, representatives of forestry associations and forest owners and managers to introduce the tool.The workshop also included worked examples for 3 stands that were damaged by wind and a subsequent field visit to the stands to compare the model prediction with direct observations.

Implementation stage
Tool is being revised based on feedback from the seminar and further experience. It will then be made available to any interested parties. At this stage there is no immediate plan to incorporate this version of the model directly into official planning systems but to provide a simple and easy use tool within a commonly used software (Excel) to make it as user-friendly as possible.

State of technical knowledge
The tool represents our best current understanding of caclualting wind risk to forests and is state-of-the-art for forest risk calculation in the Spanish Basque Country.

Regulatory and/or socio-economic contexts
At present little regulatory context but potentially important socio-economic benefits by helping forest managers and owners to make silvicultural decisions to mitigate the risk of wind damage

Impacts of the tool

To date very little impact because the tool has not been widely adopted. Efforts will be made to increase the impact by improving the implementation in Excel and organising further workshops.

Implementation requirements and durability

Description of the implementation steps
1. Underlying model development (Basaize)
2. Incorpotion of model functions in Excel
3. Workshop with key stakeholders
4. Revision of Excel implementation based on stakeholder feedback (in progress)
5. Model available to download (not yet implemented)

Governance
- EFI PFF will be responsible for continued development, improvement and availability
- EFI PFF will be responsible for implementation and training in France

Regulatory framework
The tool is advisory only to assist forest managers. There is no regulatory framework at present.

Human resources requirements
Good collaboration between EFI and the main stakeholder groups will allow long-term implementation beyond the end of the project. For successful implementation it will require further one/two day workshops. Such workshops should be organised once or twice a year in Nouvelle-Aquitaine. In addition some form of short help manual is also required.

Financial requirements
Low level of financial requirement for basic installation because the tool is freely available and can be added to Excel for anyone with access to Excel. However, for a fully effective implementation it will be necessary to make the incorporation in Excel more clear, to organise better cell protection to avoid users ovwerwriting active cells and to provide a short help manual.

Technical requirements
Can run on any computer with Excel. Could also run on Excel online.

Priorities identified for successful implementation of the tool (political, technical, human, financial...)
The priorities are promotion of the tool within the forestry sector in Nouvelle-Aquitaine, and updating of the model to interface and ease of use. There is also a need for the forest authorities to encourage use of such a tool within the region.
In addition there is software called "BERT", which allows Excel to call R functions directly. This would be a way to access all the detailed functions already created in R rather than having all the functions written in Excel and would be a better way to ensure model was kept uptodate.

Challenges or risk factors (legal, financial, safety...) expected during the implementation and solutions proposed
The main challenge is to change the way that forest managers and owners evaluate risk. For a rare (but important) hazard like storms it is difficult to persuade people to utilise such tools. In addition the role of forestry associations in promoting the tool is very important because of the large number of small-scale private forest owners in the region.

Additional and non-formal experiences to help the implementation of good practice
This tool was designed to be used by people familiar with Excel but who are not comfortable with installing and learning how to use a stand-alone software.

SWOT analysis

Strengths	Weaknesses
Scientifically based and tested tool for evaluating storm risk Familiar to most computer users because of experience of most computer users with Excel	Model is not integrated in the current management systems used in the region Currently only incorporates *Pinus radiata* growth tables and other species growth tables need to be incorporated.
Opportunities	**Threats**
Possible to reduce the financial impact of storms on forestry in Basque Country. Allows foresters to evaluate the impact of different species choice and management options	Difficulties in persuading people to use the tool because of inherent reluctance to add additional work to busy jobs.

Lessons learnt

Evaluation process, if exists (internal or external)
Verbal feedback from participants at the first seminar demonstrating the tool. Ongoing evaluation by developer to improve performance and easy of use within Excel.

Assessment of results (quantitative and qualitative) and comparison with main goals Tool meets the original goals but needs improvement in order to make it easier to use	
Negative aspects identified Interface within Excel needs improvement and a short Help Manual in Spanish is required.	
Unexpected consequences (short- / mid- / long-term) and corrective measures implemented None so far	

Access to complete tool

Files	BasaizeinExcel.xlsx
Web links	https://www.dropbox.com/s/6vqcu8lnfzsn5yp/BasaizeinExcel.xlsx?dl=0