

Appendix 4. Network analysis metrics used to identify structurally important factors in the Swedish FSC standard development process. Bold indicates key factors, based on these metrics.

Factor	Degree	Betweennesscentrality	Eigencentrality	Loop Count
Absence of WKH concept in national legislation	1	0	0	0
Active, knowledgeable members mandated to represent each chamber in core group	3	0	0,212191	1
Alignment of environmental stakeholders' political objectives with FSC forest management objectives	5	20,921429	0,140676	176
Available resources/ capacities of different stakeholders in chamber	3	0	0	0
Broader societal debate regarding climate change mitigation/adaptation strategies	2	0	0	0
Clarification and operationalisation of WKH concept/definition	8	177,935714	0,114369	540
Clearly formulated agenda of chamber, with clearly assigned responsibilities to representatives	4	36	0,073562	72
Common understanding of biodiversity indicators in negotiations between FSC chambers	5	12,166667	0,494677	152
Common vision of what all chambers wanted to achieve through negotiations	8	120,935714	0,793568	572
Competition among global certification bodies	2	0	0	0
Concerns that small-scale forest owners will be forced to leave FSC	3	6,966667	0,038967	35
Criticism from environmental NGOs regarding the implementation of FSC standards	4	62	0,040023	215
Demands of global market to increase credibility of FSC	5	21,30119	0,003735	0
Desire of environmental chamber to control biodiversity outcomes	4	495,983333	0,373493	616
Difficulty for interpretation and adaptation of IGIs to concrete context	5	55,666667	0,069601	24
Dissatisfaction of chambers with negotiation process/ outcomes	7	502,141667	0,5664	879
Distrust & polarisation of interests between FSC chambers	15	853,715476	1	866
Efficiency/ efficacy of negotiating process	9	283,45	0,541452	443
Environmental chamber perceived to use FSC negotiations to advance environmental policy objectives	6	98,871429	0,329823	400
Forested areas designated as WKHs	4	25,677381	0,070811	161
Formal & informal consultation processes	3	49	0,049558	25
FSC certification provides important access to markets	1	0	0	0
FSC international desire to harmonise standards towards improved performance	4	21,865476	0,01226	0
Heterogeneous composition of chamber	2	24	0,088842	36
Historical evolution of FSC	0	0	0	0

IGIs propose significant increase in threshold of existing biodiversity indicators (e.g. set-asides)	5	39,19881	0,016308	0
Inclusion of WKH concept in FSC standards	4	51,833333	0,187432	347
Knowledge gaps	6	246,516667	0,113894	521
Lack of interaction between FSC International and FSC Sweden	1	0	0	0
Mismatch between IGIs and national legislation	4	84,444048	0,062286	114
Negotiation flexibility (willingness to compromise)	7	114,269048	0,591744	384
Negotiation progress rate towards final agreement	5	381,109524	0,871598	750
Number of prescriptive indicators to maintain ecological and social functions of forests	3	95,5	0,052551	106
Perceived risk of undesired/ no outcome of negotiation	2	35	0,003735	0
Perceived threat to economic interests of forest companies and owners	11	240,405952	0,27533	472
Perceived unfair impact on small-scale forest owners	3	10,279762	0,015724	0
Perception among economic chamber representatives that previous Swedish biodiversity requirements were stronger than many other national FSC standards	1	0	0	0
Perception among economic chamber that new standard is more prescriptive/ restrictive than IGIs	4	28,033333	0,02466	71
Perception amongst Swedish forestry industry that they are environmentally responsible	3	70	0,01226	0
Polarisation of "forestry" debate	6	428,516667	0,582894	596
Prescriptiveness of FSC standards	7	367,338095	0,137407	484
Relative lack of indicators concerning development of economic results for responsible forestry	2	9,704762	0,131152	61
Shift of discussion focus from essential things to technical details	3	10,166667	0,331482	298
Size of chamber (number of representatives)	3	34	0,088842	48
Societal/policy expectations that Swedish forest-based bioeconomy will deliver important outcomes for climate mitigation/adaptation	2	1	0,003735	0
Space for interpretation regarding responsibilities of forest companies	6	127,22381	0,07201	251
Stakeholder participation in negotiation	6	392,683333	0,233522	604
Temporary removal of WKHs from FSC negotiation process	5	48,344048	0,580992	432
Tendency of individual negotiators to dwell on previous defeats	2	12,666667	0,189358	181
Unfinished WKH inventory	2	0	0	0
Unrealistic expectations among stakeholders regarding utility of FSC	2	5,166667	0,025052	24

certification

Vagueness of national

environmental/forest legislation

2

0

0

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