

Table 15 SWOT analysis Biorefinery from a Dutch point-of-view.

<p>Strengths (internal)</p> <p>S1. Strong agrocluster, chemical sector & energy sector available, situated relatively close to each other</p> <p>S2. Advantageous geographical position in European market and logistical infrastructure (a.o. harbours in/export)</p> <p>S3. Food industry is already experienced with biorefinery processes</p> <p>S4. Good Knowledge Infra Structure (KIS, universities and institutes)</p> <p>S5. Position in White Biotechnology</p> <p>S6. Position in catalysis</p> <p>S7. Interest of chemical industry to use more biobased feedstocks</p> <p>S8. National R&D funding programmes (a.o. EOS LT)</p> <p>S9. Large biomass flux is common already (import)</p> <p>S10. National stakeholder platform (biorefynery.nl) available</p> <p>S11. International stakeholder platforms (IEA Bioenergy Task 42, EU TPs) available</p> <p>S12. Focus on zero-waste production processes – sustainable use process residues</p>	<p>Weaknesses (internal)</p> <p>W1. Insufficient co-operation between stakeholders of agro, chemical and energy sectors</p> <p>W2. Governmental departments do not work together closely enough</p> <p>W3. Key technologies partly still in R&D-phase</p> <p>W4. Most optimal biomass – product chains still not identified</p> <p>W5. Studying instead of implementing</p> <p>W6. Investment capital for pilot and demo initiatives difficult to find</p> <p>W7. Full chains often not yet market competitive due to relatively cheap fossil fuels</p> <p>W8. R&D funding programmes often fragmented concerning budget and content</p> <p>W9. A common vision and roadmap is still lacking</p> <p>W10. Insufficient co-operation within the KIS</p> <p>W11. Funding instruments not tuned yet for co-production processes</p> <p>W12. Domestic terrestrial biomass potential limited even when optimal utilization is achieved</p>
<p>Opportunities (external)</p> <p>O1. Biorefinery central on national and European policy agendas</p> <p>O2. Challenging national and European policy goals for bioenergy (fuels, energy) lead to high demand and trade of biomass</p> <p>O3. Biorefinery is a necessity to meet the biofuel-related policy goals</p> <p>O4. Strengthening of the economic position of the agro, chemical and energy sectors</p> <p>O5. Preferential position in Europe still vacant</p> <p>O6. Interdepartmental approach potentially results in an integrated policy framework</p> <p>O7. Co-operation between stakeholders can boost the development and implementation of biorefinery concepts</p> <p>O8. Much regional interest to contribute</p> <p>O9. Potential energy savings and improved process economics</p> <p>O10. Optimal use of domestic biomass (e.g. insufficiently used agro residues)</p> <p>O11. Short-time implementation conventional biorefineries by upgrading residues</p> <p>O12. Development advanced biorefineries to prevent competition with food/feed</p> <p>O13. Development multi-purpose biorefineries in a framework of scarce raw materials and energy</p> <p>O14. Sustainability criteria in biofuels for transport will make biorefinery alternatives more attractive</p> <p>O15. Large sea surface available for biomass production</p> <p>O16. NL can use export power - producing more biofuels (3x) and bulkchemicals (2.5x) than our own consumption</p>	<p>Threats (external)</p> <p>T1. The biorefinery area is very broad, fashionable, and complex</p> <p>T2. US (and EU) are ahead on implementation</p> <p>T3. External costs fossil-based products still not taken into account</p> <p>T4. Fluctuating (long-term) governmental policies delay company investments</p> <p>T5. No policy goals for biomaterials and biochemicals yet</p> <p>T6. Focus on single products like biofuels and electricity only (no chemicals yet) and not on multiple products</p> <p>T7. Markets for complete product portfolio are a necessity for success</p> <p>T8. Existing industrial infrastructure is not depreciated yet</p> <p>T9. High initial investment costs for pilots and demos</p> <p>T10. Decreasing oil price will lower the urgency and economic feasibility of the biobased economy</p> <p>T11. Discussion food/feed/fuels and biomass sustainability</p> <p>T12. No level-playing-field for end-products</p> <p>T13. Companies using traditional production processes can slow down new developments</p> <p>T14. Lock-in effect of conventional biofuels caused by agricultural interests</p> <p>T15. Difficult biomass contractibility and sustainability</p> <p>T16. Uniform EU and worldwide sustainability criteria still missing</p> <p>T17. Insufficient sense of urgency</p> <p>T18. NL is depending on export (see O16)</p>