

Table 33 Technology action plans for second generation biofuels

No.	Activities	Period			Related stakeholders	Key indicators	Priority	Fund sources
		Short	Medium	Long				
Financial								
E1	Apply for international fund, especially on advance technology	✓	✓		(i) foreign agencies (ii) central agencies (MoE)	(i) number of supporting projects	Very high	International level
E2	Allocate budget for research and pilot scale projects	✓	✓	✓	(i) central agencies (MoE, MOST, PTT, DEDE) (ii) research or education institutes	(i) number of supporting projects (ii) increasing rate of pilot projects	Very high	National level
E3	Promote private company/industry investment on the 2 nd market	✓	✓		(i) central agencies (MoE, PTT, DEDE, Bangchak)	(i) number of implemented system (ii) increasing rate of implementation	High	National level
E4	Encourage national energy agency to study and/or research on bioethanol and biodiesel		✓	✓	(i) central agencies (MoE, PTT, DEDE, MOST) (ii) research agency, education institute (iii) foreign fund	(i) number of research study (ii) published papers (iii) seminars/participants	Very high	National level
E5	Study on the potential of CDM in biofuel		✓		(i) foreign agencies (ii) central agencies (MoE, MOST, research agency, education institute)	(i) number of CDM project (ii) GHG mitigation potential	Normal	International level and national level

No.	Activities	Period			Related stakeholders	Key indicators	Priority	Fund sources
		Short	Medium	Long				
E6	Study on the potential of domestic and international supported NAMA concept		✓		(i) central agencies (TGO, MoE, education institute)	(i) number of NAMA project (ii) GHG mitigation potential	Normal	International level and national level
Policy and Regulatory								
E7	Develop national plan/roadmap for second and third generation biofuels	✓			(i) central agencies (MoE, DEDE)	(i) the national plan/roadmap in biofuels (ii) timeline	Very high	National level
E8	Identify the government agency responsible for second and third generation biofuels development	✓			(i) central agencies (MoE, DEDE)	(i) government agency(s) identified	Very high	National level
E9	Study the international standards/regulations related to biofuels		✓		(i) central agencies (DOEB)	(i) summary reports of standards or regulations related to biofuels	High	National level
E10	Establish research institutes particularly focus on second and third generation biofuels			✓	(i) central agencies (DEDE, PTT, Bangchak), (ii) foreign center/institute	(i) research works	Normal	International level and national level
E11	Identify the needs for appropriate regulation, guideline, or standard, including safety guideline		✓		(i) central agencies (DOEB)	(i) biofuels regulation/guidelines	Normal	International level and national level
Technology								
E12	Identify the most appropriate technology for second and third generation biofuels	✓			(i) central agencies (MoE, MOST, PTT, DEDE) (ii) research or education institute	(i) identified the technology needs (ii) timeline	Very high	National level

No.	Activities	Period			Related stakeholders	Key indicators	Priority	Fund sources
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E13	Conduct fundamental researches on second and third generation fuels	✓	✓		(i) central agencies (MoE, MOST, PTT, DEDE) (ii) research or education institutes (iii) international funding	(i) number of study reports	High	International level and national level
E14	Set up demonstration plants		✓	✓	(i) foreign agencies (ii) central agencies (MoE, MOST, research agency, education institute) (iii) foreign funds	(i) pilot projects (ii) number of applied researches (iii) expansion plan from pilot scale to full biofuel scale	High	International level and national level
E15	Manage collecting system of agricultural residue e.g. equipment and post-harvest machines		✓		(i) central agencies (MoE, MoA, DEDE)	(i) market impact from smart grid report (ii) the SWOT analysis	Normal	National level
E16	Impact analysis of the technology to the market, agricultural or food sectors	✓	✓		(i) central agencies (MoE, MOST, PTT, DEDE) (ii) research or education institute	(i) the study report (ii) the SWOT analysis	High	National level
E17	Investigate the GHG reduction from second and third generation biofuels	✓			(i) central agencies (TGO, education institute) (ii) foreign funds	(i) the study report	Normal	International level and national level

No.	Activities	Period			Related stakeholders	Key indicators	Priority	Fund sources
		Short	Medium	Long				
Capacity Building								
E18	Establish research institutes focusing on second and third generation biofuels	✓	✓		(i) education and research institute (ii) foreign education institute/center/fund	(i) research institute	High	International level and national level
E19	Capacity building in main issues to stakeholders focus mainly in the domestic production potential, understanding of GHG mitigation and other environmental impact		✓	✓	(i) education and research institute (ii) foreign education institute/center/fund	(i) the number of participant, (ii) number of certificate issued	Normal	National level
E20	Prepare scholarship or grant to increase experts/ researchers in this area	✓	✓		(i) Research institutes	(i) scholarships/ grants	High	National level
E21	Organize training programs (exchange experts among world class institute) for related agencies both public and private sectors	✓	✓		(i) central agencies (MoE, DEDE), (ii) private sector, (iii) education institute	(i) number of experts or researchers	High	National level
E22	Inform publics about the technology to have correct understanding		✓	✓	(i) central agencies (MoE, PTT, Bangchak)	(i) informed community	Low	National level