



Pemanfaatan Limbah Tandan Kosong Kelapa Sawit (TKKS) sebagai sumber Selulosa

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TUJUAN PROJECT

1

Mengurangi limbah TKKS dan memanfaatkan sebagai sumber selulosa



51 juta ton TKKS
(Kemenperin RI, 2022)

20%

Lignin

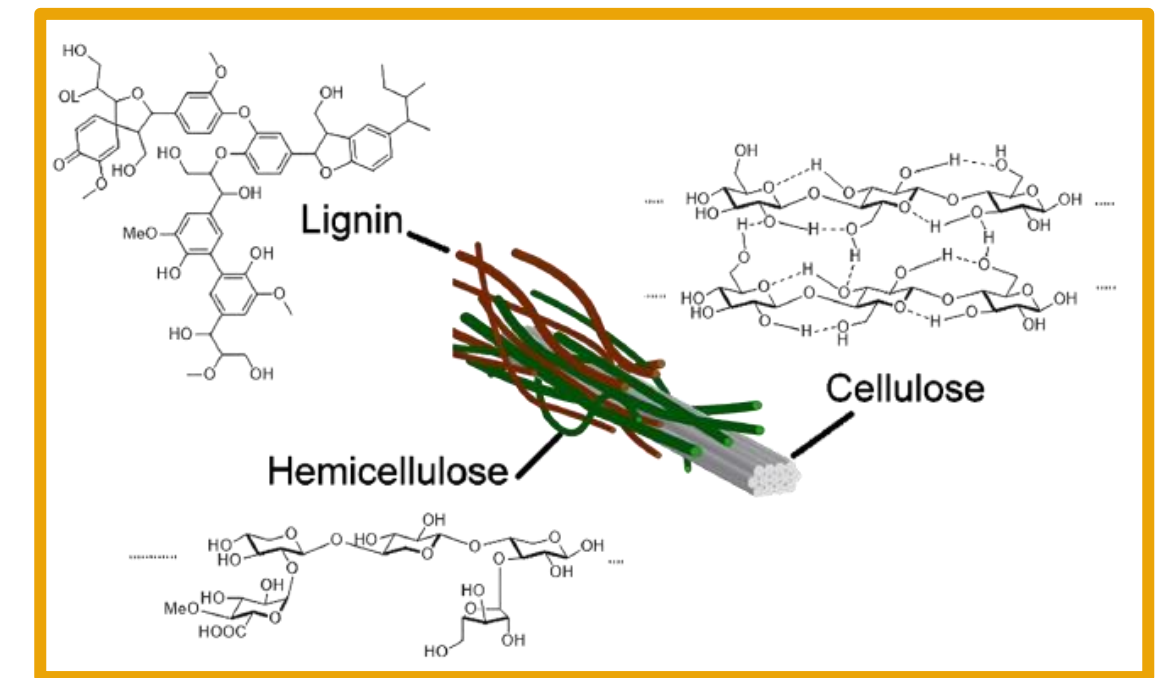
23%

Hemiselulosa

39%

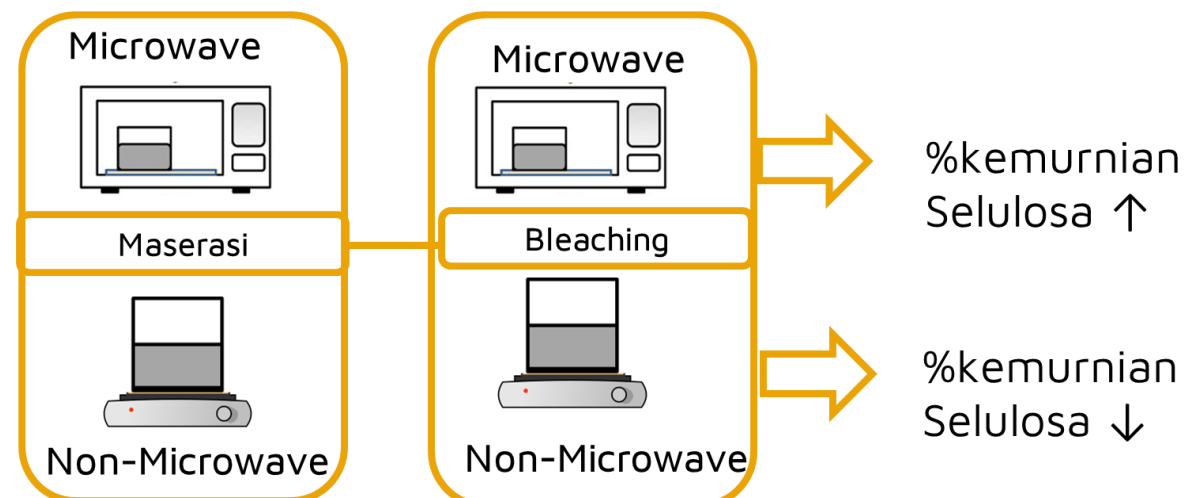
Selulosa

Yimlamai dkk., 2021



2

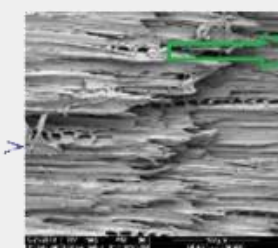
Optimasi metode ekstraksi selulosa



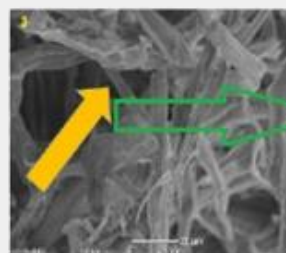
JUSTIFIKASI RISET/PROJECT

Camani dkk., 2020

Non-microwave
(alkali treatment)

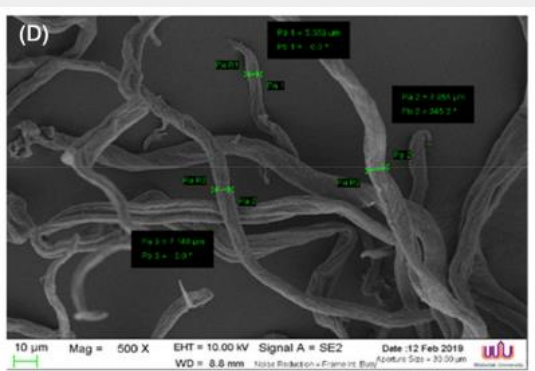


microwave



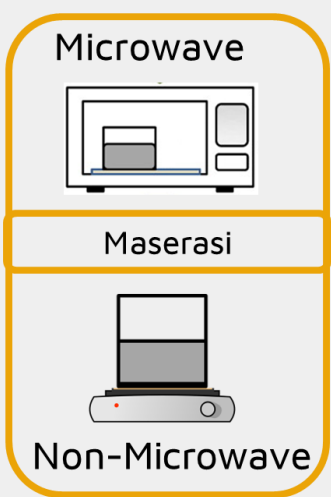
Yimlamai dkk., 2021

Non-microwave
(alkali treatment)



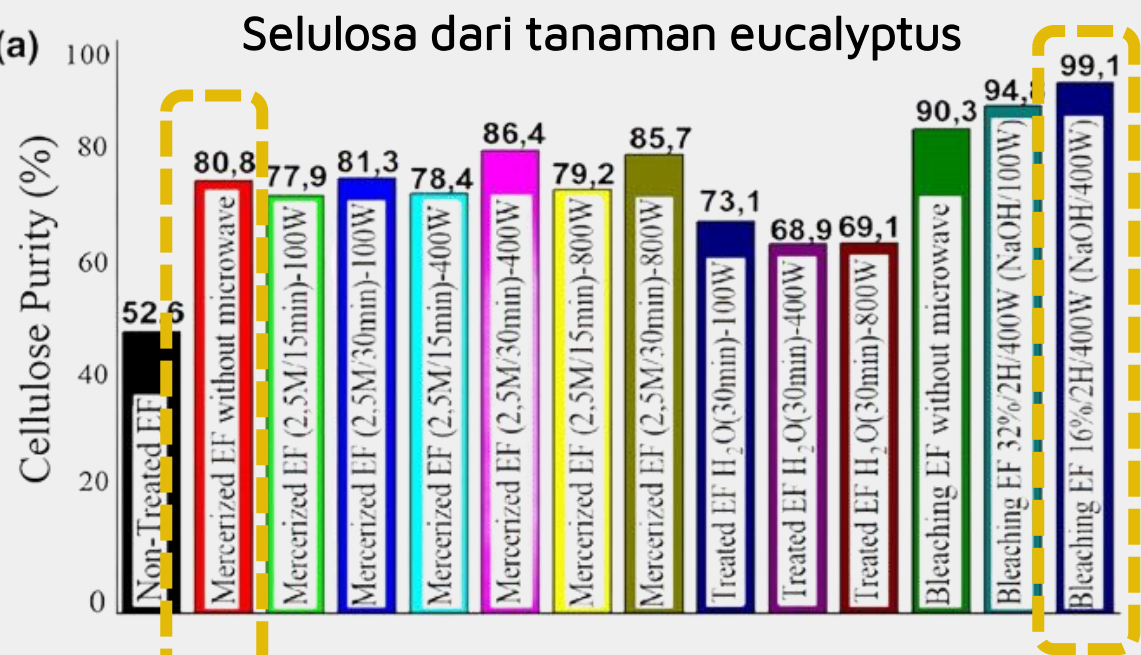
Selulosa dari TKKS

Penelitian Kami



%kemurnian
Selulosa ↑

%kemurnian
Selulosa ↓



Kemurnian ↑ 18.3% dari 80.8%
manjadi **99.1%** dengan
menggunakan microwave

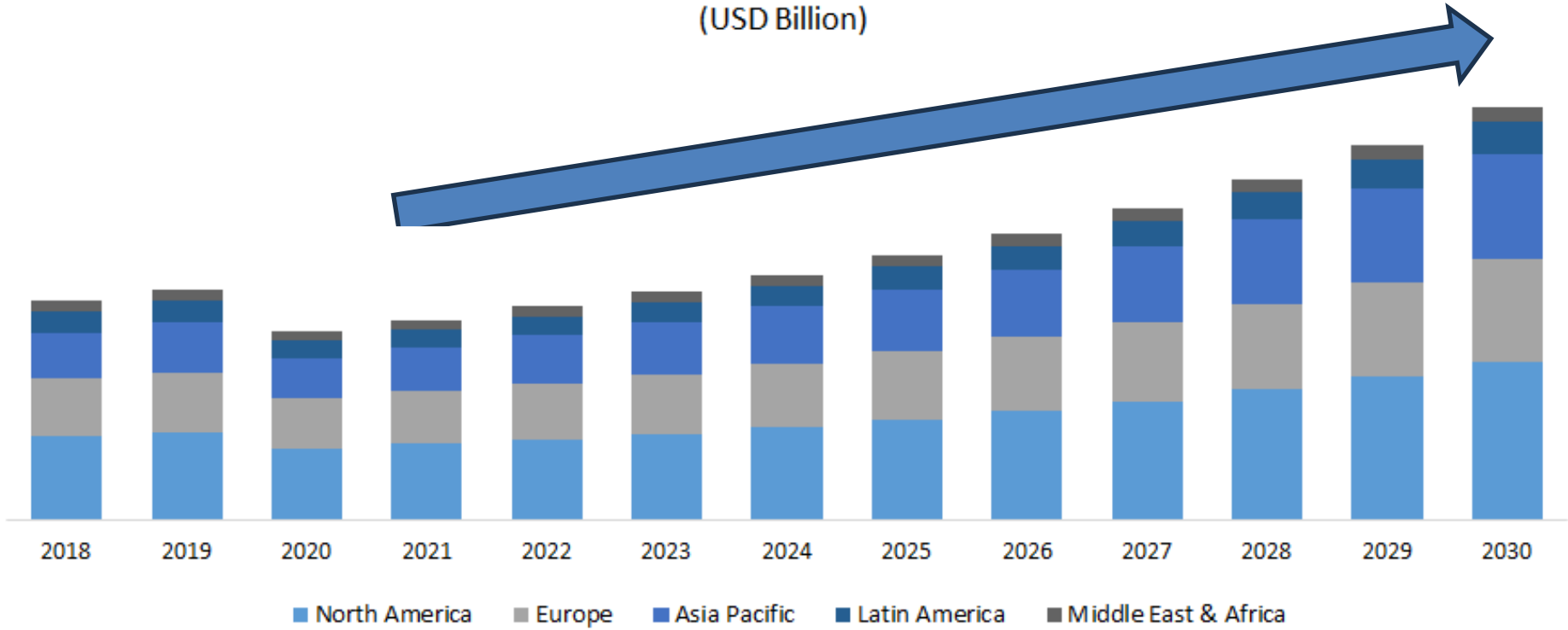
	Komposisi (%)		
	Selulosa	Hemiselulosa	lignin
EFB fiber	39.0 ± 1.7	23.1 ± 1.2	20.1 ± 0.1
Delignificati on-EFB	51.3 ± 4.2	23.0 ± 0.4	4.7 ± 0.1
Cellulose-EFB	83.7 ± 3.4	5.6 ± 0.3	1.7 ± 0.0

JUSTIFIKASI RISET/PROJECT

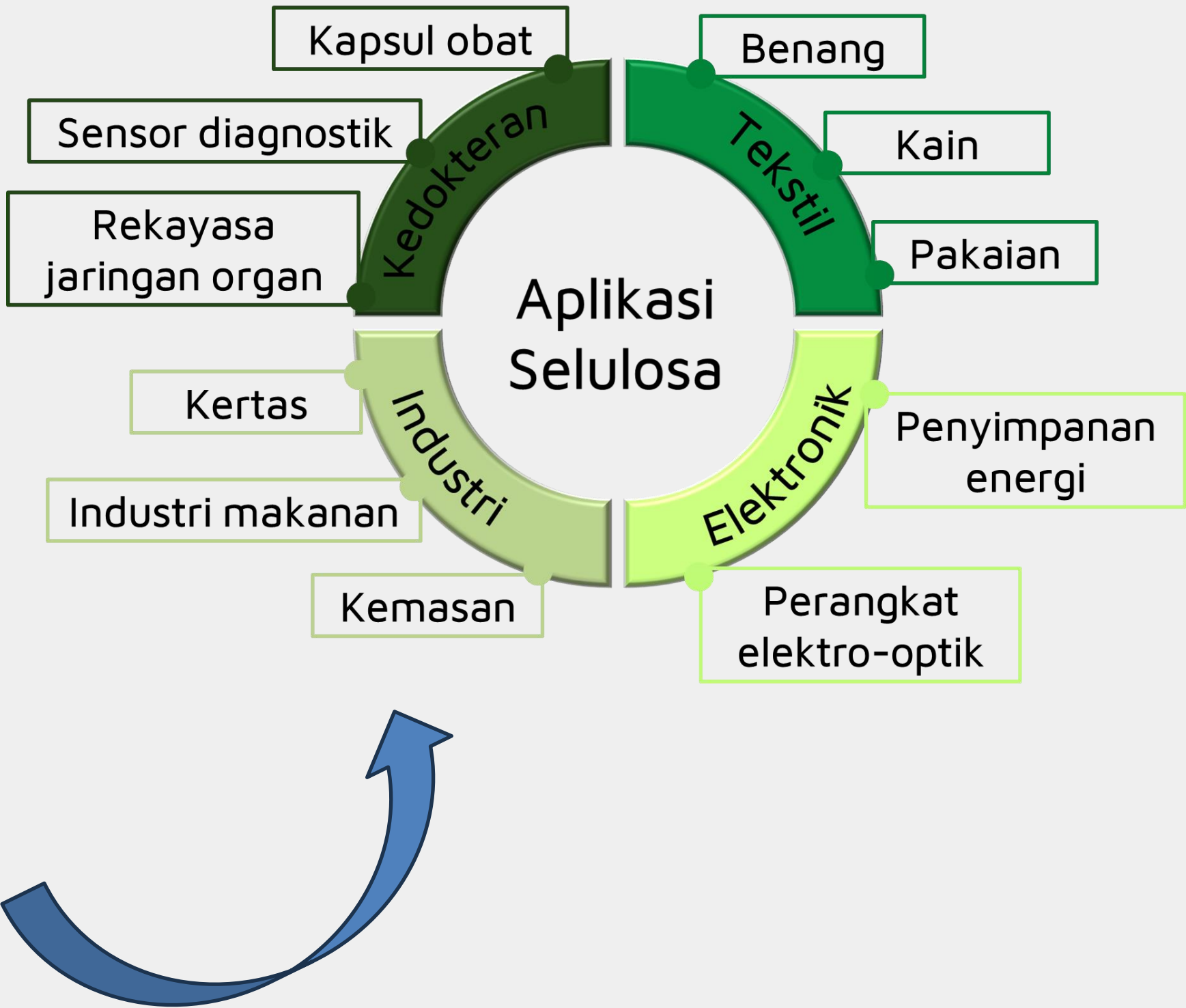
Peningkatan Permintaan selulosa



Regenerated Cellulose Market Size, By Region, 2018 - 2030
(USD Billion)

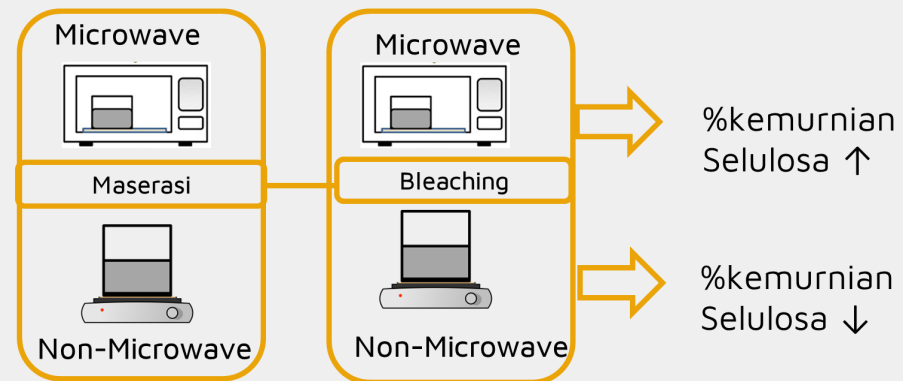


Source: Polaris Market Research Analysis



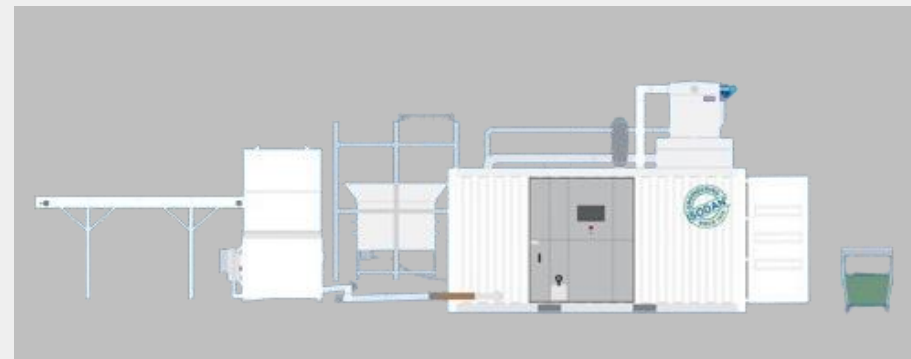
BIG PICTURE RISET/PROJECT

Lab scale

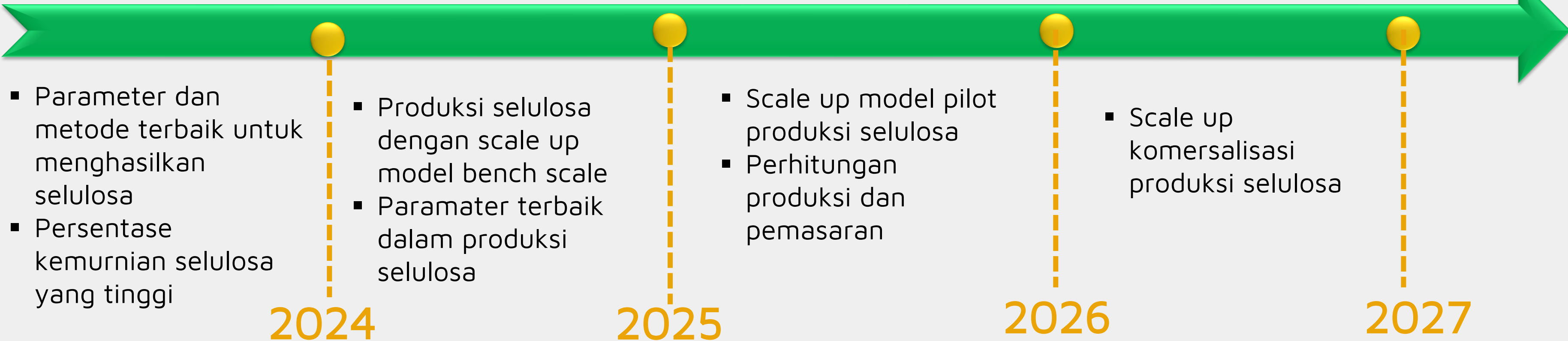


Continuous Process

Large scale

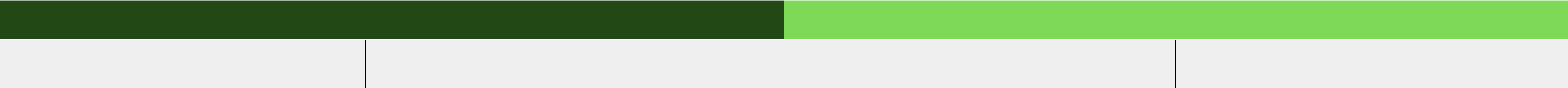


commercialization



GANTT CHART PELAKSANAAN

No	Jadwal Kegiatan	Mei	Juni	Juli	Agustus	September	Oktober	November
1.	Studi literatur							
2.	Persiapan alat dan bahan							
3.	Ekstraksi selulosa dari TKKS tanpa menggunakan microwave							
4.	Monev 1							
5.	Ekstraksi selulosa dari TKKS menggunakan microwave							
6.	Karakterisasi selulosa (FTIR, XRD, TGA, SEM-EDX)							
7.	Analisis data							
8.	Monev 2							
9.	Penulisan Jurnal dan Project report							
	Persentase pencapaian (%)	10	30	50	70	80	90	100



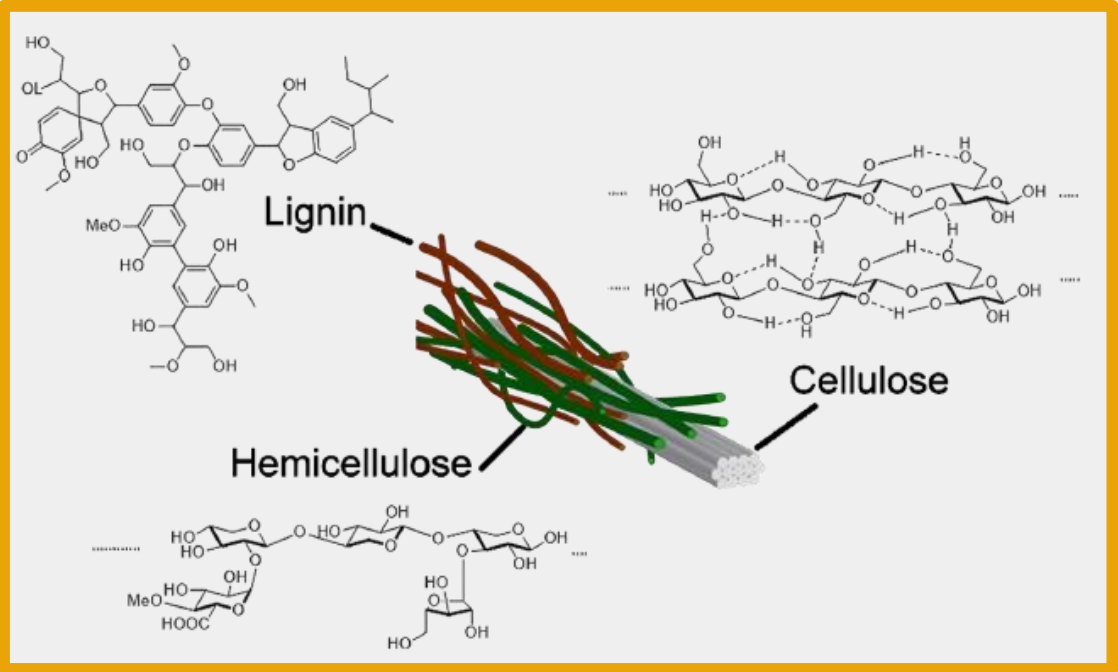
RAB RISET/PROJECT (BIAYA, MPP, ALAT DAN BAHAN)

No	Pengeluaran	Rincian	Biaya
1.	Bahan habis pakai	Reagen untuk proses maserasi dan bleaching selulosa	Rp. 3,800,000
2.	Peralatan	Peralatan sintesis selulosa	Rp.191,000,000
3.	Pengujian sampel	FTIR	Rp. 2,000,000
		SEM-EDX	Rp. 9,500,000
		XRD	Rp. 2,000,000
		TGA	Rp. 6,000,000
4.	Perjalanan	Perjalanan pendukung penelitian	Rp. 23,226,000
5.	Lain-lain	Publikasi jurnal dan biaya tambahan lainnya	Rp. 37,000,000
Total			Rp 299,926,000

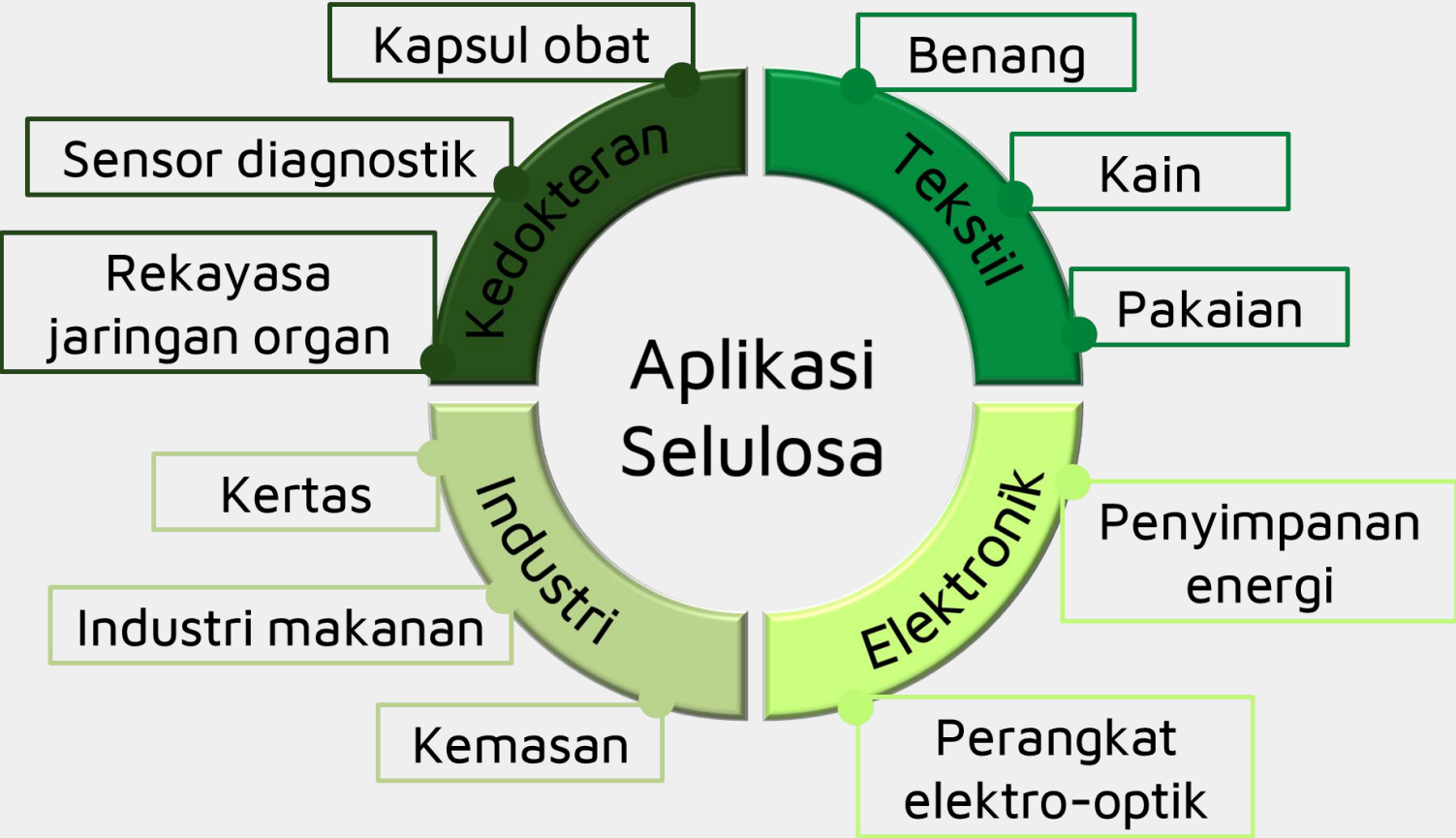
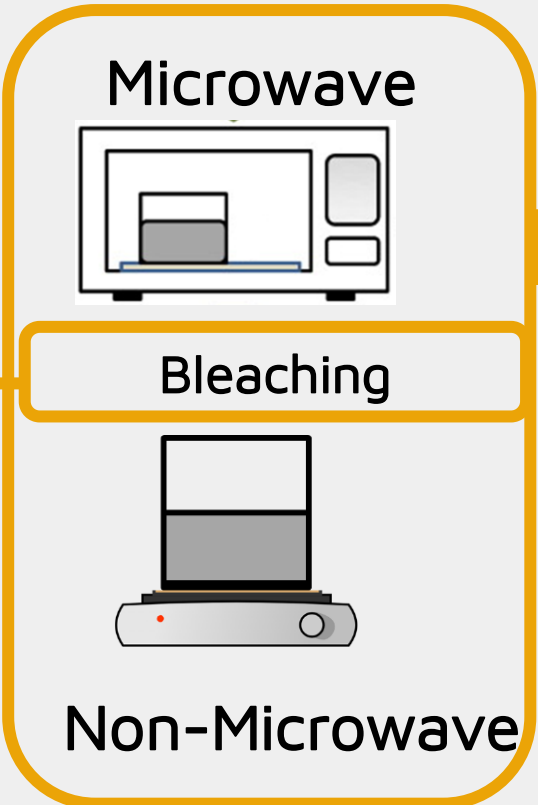
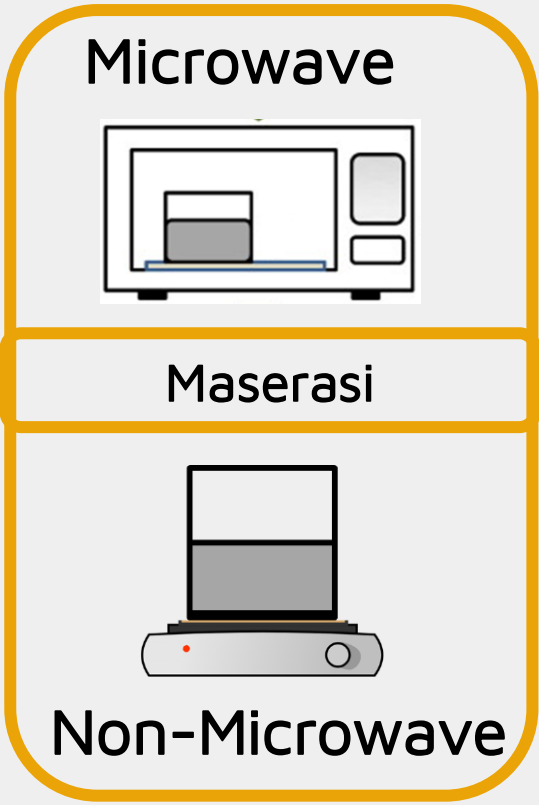
DAMPAK RISET/PROJECT

Non-financial

Pengurangan
limbah Biomassa
TKKS



Metode



%kemurnian
Selulosa ↑

%kemurnian
Selulosa ↓





Bumitama Gunajaya Agro

**THANK
YOU**

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