ゴム農園周辺地域における住民参加型の森林回復モデルの広域化と生物多様性評価
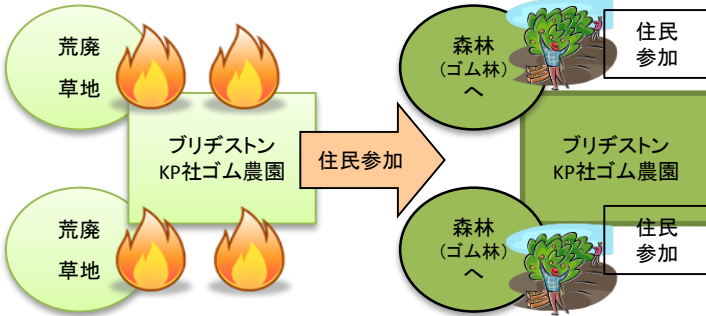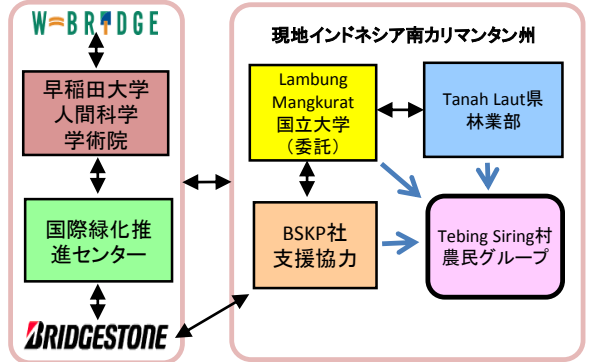
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研究・活動の背景と目的

✓ ブリヂストン・カリマンタン・プランテーション社（BSKP社）は、インドネシア南カリマンタン州でゴム農園を経営。その周辺には、森林が消失し、草地化した国有林（保安林）が広範囲に分布している。

✓ こうした荒廃草地に「コミュニティ林制度」を適用し、ゴムノキ植栽を通して「住民参加型の森林回復」を達成、地域住民の生計向上を図る。

✓ 残存する天然性二次林における植生調査・生息動物調査を通して、生物多様性の評価を行う。

実施体制

✓ ゴム農園周辺の土地なし農民を対象として、
① 国有林地の使用権、非木材林産物の収益権を保証
② BSKP社によるゴム優良苗木提供や栽培技術指導
③ 現地大学による農民組織強化、政府との連絡・調整
④ 初期費用（資機材、労働作業）に補助金を提供

活動の内容

✓「住民の住民による住民のための森林回復」、第1期の現地実証に成功し、第2期以降の参加意欲が高まる！

First Stage

（1）国有林（保安林）において住民主体のゴムノキ植栽（第1期2012年〜第4期2016年）
森林回復（住民参加）

（2）植栽樹種として、ゴム、果樹、郷土樹種及び油料樹木の検討

（3）アグロフォレストリー：ゴムノキ列間での作物の栽培
代替生計の導入

（4）参加農民の能力開発支援：農民組織の強化
ガバナンスの構築

（5）残存二次林の構成樹種、生息動物調査及び生物多様性評価
科学的評価

（6）対象村落の社会経済調査及び経済的効果の評価
持続性の評価

Second Stage

✓ 異常乾期にも山火事延焼を防止、植林→焼失の繰返しから脱却！

（7）本森林回復モデルの広域化について、課題及び効果的な普及手法の検討

（8）南カリマンタン州において、中央政府も招待した成果発表会の開催

第1期森林回復地

第4期参加住民

結果・考察並びに今後の展望・課題

① 今期、同村内の別の農民グループも本モデル事業に参画。ただし、現状では、村内一地区318世帯のうち参加者は69名であり、今後は、参加していない者の参加及び不公平感の解消が課題。

② 参加農民グループに対する国及び県政府からの支援が開始。本森林回復モデルの普及手段として政府補助金等の可能性を検討。

③ ゴムが収穫できるまでの間、ゴム植栽列間での稲作等の穀物栽培は費用対効果が低く困難。現在、コーヒー等栽培を試行中。今後は、ゴム林内における牛の飼料栽培及び林内放牧の可能性を検討予定。
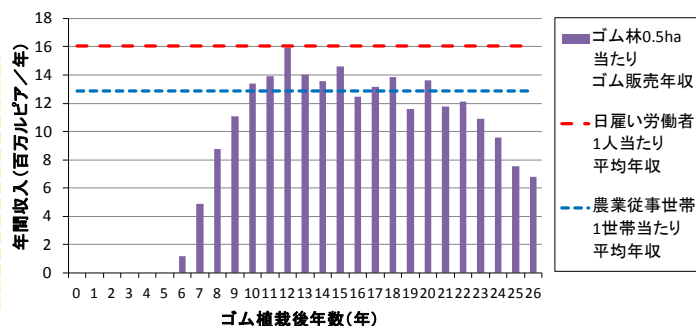
④ 植生・動物並びに社会・経済調査結果の成果を公表予定（学会等）。

図　対象村における職業別年収及び本モデルによるゴム年収の将来予測

W=BR1DGE

Community Development Based on Forest Rehabilitation Model of Degraded Land Surrounding the Rubber Tree Plantation and Conservation of Biodiversity

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Background and Objective of Research/Activities

✓ Bridgestone Kalimantan Plantation (BSKP) operates a rubber tree plantation located in South Kalimantan, Indonesia. The national forest area, surrounding the BSKP, has turned into grassland and designated as protection forest to maintain the forest function.

✓ A community forest program will be applied for this degraded grassland to achieve community based on forest rehabilitation through planting rubber trees, which contribute to the livelihood improvement of the local community.

✓ Biodiversity will be evaluated through a survey of flora and fauna in the remaining natural secondary forest.
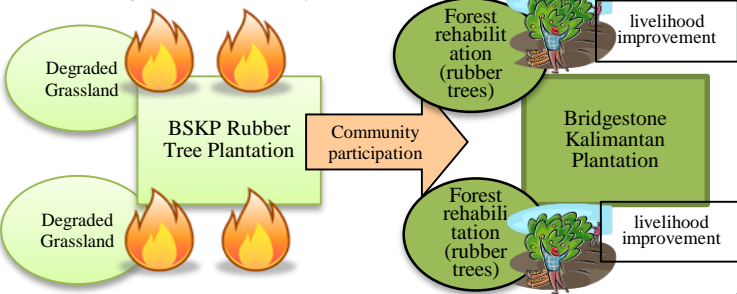
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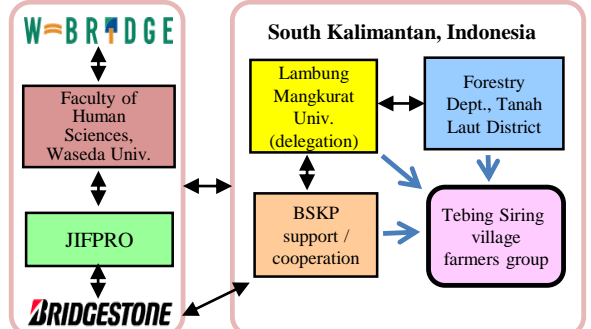
✓ For farmers without land living near the BSKP:

① Guaranteed right to use national protection forest land and right to harvest non-timber forest resources

② Provision of high quality rubber seedlings and training on the cultivation techniques by BSKP

③ Strengthen farmer organizations through efforts by local universities, and coordinate and cooperate with the government.

④ Provision of subsidy for labor as initial start-up costs

Detailed Activities

First Stage

✓ The recovery of forests by and for residents in former stage contributing to increasing motivation to participating farmers and present program is farther development of our program as following steps.

(1) Rubber trees planted by community in the national protection forest (Term 1 2012～ Term 4 2016)

(2) Planting rubber trees, fruit trees, native tree species, and oil trees — **Forest rehabilitation by community participation**

(3) Agroforestry: Cultivate crops between rows of rubber trees — **Introduction of the alternative livelihoods**

(4) Capacity building for participating farmers: Build up farmer organizations — **Establish governance**

(5) Assess biodiversity of flora and fauna of the remaining secondary forest — **Scientific evaluation**

(6) Socioeconomic survey on the target villages — **Sustainability evaluation**

✓ Prevented the spread of forest fires during abnormally dry seasons, and moved away from the cycle of afforestation → destruction by fire.

Second Stage

(7) Examine challenges and effective ways to extend our forest rehabilitation model to the surrounding areas

(8) The result of this study was presented in the social forestry seminar in South Kalimantan, and the central government was also invited to attend the seminar.

Forest recovery areas for Term 1

Participating residents for Term 4

Results and observations, and future outlook and challenges

(1) Another farmer group in the same village also started to participate in this model project from this stage. However, under the current conditions, there are only 69 participants from 318 households in the sub-village I. Going forward, participation by those who are not participating now, as well as eliminating a sense of unfairness, are challenges to be tackled.

(2) The national and the district government has started to support the participating farmer groups. Consider the possibility of obtaining government subsidies or other means for the extension of this forest recovery model.

(3) In the period until rubber can be harvested, the cost-effectiveness of grain cultivation (such as rice cultivation between rows of rubber trees) is low, creating difficulties. Trial attempts are currently being made to cultivate coffee and other crops. Going forward, there are plans to consider the possibility of cultivating feed for cattle or allowing forest grazing in the rubber forest.

(4) There are plans to publish (at academic conferences, etc.) the results of studies on fauna and flora, as well as of social and economic studies.

Legend:
- Annual rubber sales revenue per 0.5ha of rubber forest
- Average income per day laborer
- Average income per household engaged in agriculture

y-axis: Annual revenue (Million rupiah/year)
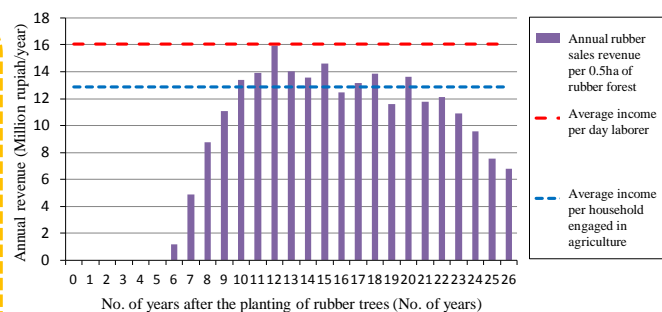x-axis: No. of years after the planting of rubber trees (No. of years)

Fig. Future forecasts for annual income by occupation in the villages shown in the diagram, and for annual revenue for rubber are based on this model