

2014 年度
国内実地研修報告書

—三重県大台町に学ぶ自然と人びとが幸せに暮らすまちづくり—

Domestic Fieldwork Report 2014

**Community Development for a Happy Life of People with Nature:
Lessons Learnt from Odai-Cho, Mie Prefecture**

2015 年 3 月
March 2015

名古屋大学大学院国際開発研究科
Graduate School of International Development
Nagoya University

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はじめに

2014年度国際開発研究科国内実地研修（Domestic Fieldwork、以下「DFW」）は、9月24日～26日に三重県多気郡大台町において行いました。DFWの目的は、日本における地域開発の経験と現状を、現場に赴いて調査することにより、国際開発協力への新たな視点を獲得することにあります。2013年度までの数年間は、静岡県浜松市や愛知県瀬戸市を調査フィールドとして選択し、大都市圏周辺における地域開発や地域共同体形成について調査実習を行ってきました。それに対して、2014年度の調査地である大台町は、人口減少が進む南勢地方に位置し、人口減少の中でいかに地域の社会、経済、教育を維持していくかという課題に直面しています。

大台町は宮川の清流にそって形成された町で、日本三大渓谷に数えられる大杉谷溪谷や豊かな森林、町内に点在する茶畑など美しい景観を持っています。しかし、近年の木材価格下落と労働者不足により主産業であったスギ林は放置され、自然災害の原因ともなっています。茶産業についても、京都・宇治や静岡などに比べて知名度の劣る伊勢茶は、緑茶消費の減少と茶価格の低迷そして後継者不足により苦戦している産業です。また、教育についても少子化により学校の統廃合が進み、さらに高校以上の進路の選択肢が少ないことも人口流出につながっています。

大台町は、これに対して第三セクター方式による雇用創出、町内への移住促進などに取り組み、そのために町内外を問わず若手人材の登用に努めています。また、環境保全や観光・農業振興に向けた市民社会の参加も注目すべきことです。

これらの問題と対策は、大台町に限ったことではありませんが、大台町を通じて日本の遠隔地域が抱える問題の多くを知ることができると思います。

2014年度DFWに参加した18名の学生の多くは留学生で日本語が理解できないため、資料調査や聞き取り調査は日本人ティーチング・アシスタントのサポートを受けて行いました。事前調査に4ヶ月近くかけたとはいえ、実地での調査は3日間と短く、したがってその調査結果は到底十分なものとは言えません。2015年度も引き続き大台町のご協力を得て、DFWを行えることとなったので、より充実した調査成果が期待されます。

最後になりましたが、2014年度DFWは大台町町長をはじめとする大台町役場からの実に多くの協力を得て行うことができました。特に、町役場企画課・西出覚係長は多忙な本務に加えて、DFWに必要な訪問先調整などに非常に多くの時間を割いていただきました。また、名古屋大学までおいでいただき、大台町の抱えるさまざまな問題について詳しく学生に説明していただきました。調査にあたっては、大台町の小中学校、大杉谷自然学校、森林組合、森林保全に取り組むNGOである「森撰組」「フォレストファイターズ」、道の駅、町内の茶農家の方々、農協にもご協力い

ただきました。また、私どもを町役場にご紹介いただいた町議会議員・小野氏および名古屋大学
研究員・中世古氏の協力も不可欠なものでした。

名古屋大学大学院国際開発研究科

2014年度国内実地研修委員会

委員長 島田弦

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2014 国内実地研修の概要

1. 目的

名古屋大学大学院国際開発研究科は、1995 年以降、正規のカリキュラムの一環として国内実地研修（Domestic Fieldwork、略称 DFW）を実施している。DFW は、1992 年以降本研究科で実施されている海外実地研修（Overseas Fieldwork、略称 OFW）をモデルに考案されたもので、これら二つのプログラムは本研究科が重視する実践教育の支柱となっている。

DFW の主な目的は、日本の地域開発をめぐる諸問題や町おこし・村おこしの取り組みについて現地調査を通じて学ぶことにある。本研究科の修了生の多くは国際開発・協力の実務や研究活動に携わっているが、将来、そうした職務に就く可能性の高い日本人学生や留学生にとって、日本国内での開発事例を学ぶことは発展途上国の開発問題を考える際にも非常に有益であると考えられるためである。そうした学習・調査活動を通して、参加学生が「開発現場」を知ることの重要性を実感すること、そして国際色豊かな構成員でのグループ活動を通して現地調査の基本的姿勢や方法を習得することもまた DFW の重要な目的となっている。

2. 本年度を含む実施実績

これまでの実施実績は下表の通りである。19 回目となる本年度の DFW は、三重県大台町に受け入れをしていただいた。現地調査は 2014 年 9 月 24-26 日に実施され、参加学生は 3 つのテーマ別に分かれて、それぞれの視点から大台町について多面的理解に努めた。本年度も例年同様、調査終了後に調査地を再び訪れ、結果報告をさせていただいた。それによって調査をお引き受けいただいた大台町の方々に直接、調査結果のフィード・バックを行えたこと、そして役場の方々を中心とする関係者の方々に貴重なご意見やご指摘を賜ることができ、大変貴重な機会となった。なお本年度の参加学生は日本人学生 3 名と留学生 13 名の計 16 名で構成された。

■ DFW の実施実績

| | 年度 | 研修場所 | 参加学生数（内、留学生数） |
|----|--------|------------|---------------|
| 1 | 1995 年 | 愛知県幡豆郡一色町 | 10 (4) |
| 2 | 1996 年 | 愛知県幡豆郡一色町 | 13 (8) |
| 3 | 1997 年 | 愛知県加茂郡足助町 | 19 (11) |
| 4 | 1998 年 | 愛知県加茂郡足助町 | 25 (14) |
| 5 | 1999 年 | 愛知県渥美郡渥美町 | 36 (25) |
| 6 | 2001 年 | 愛知県南設楽郡鳳来町 | 23 (14) |
| 7 | 2002 年 | 岐阜県郡上郡八幡町 | 26 (18) |
| 8 | 2003 年 | 岐阜県加茂郡東白川村 | 36 (16) |
| 9 | 2004 年 | 岐阜県加茂郡東白川村 | 32 (15) |
| 10 | 2005 年 | 長野県下伊那郡泰阜村 | 31 (17) |
| 11 | 2006 年 | 長野県下伊那郡泰阜村 | 40 (19) |

| | | | |
|----|-------|-------------|---------|
| 12 | 2007年 | 長野県下伊那郡清内路村 | 25 (20) |
| 13 | 2008年 | 長野県下伊那郡阿智村 | 28 (17) |
| 14 | 2009年 | 長野県下伊那郡阿智村 | 20 (15) |
| 15 | 2010年 | 静岡県浜松市 | 31 (21) |
| 16 | 2011年 | 愛知県田原市 | 21 (19) |
| 17 | 2012年 | 愛知県瀬戸市 | 16 (12) |
| 18 | 2013年 | 愛知県瀬戸市 | 18 (13) |
| 19 | 2014年 | 三重県大台町 | 16 (13) |

(注) 2000年度は研修場所の諸事情により実施されなかった。

3. プログラム内容

DFW のプログラムは、事前研修、ワーキング・グループ (Working Group、以下、WG とする) などの調査準備、現地調査、結果報告会の3つの活動から構成される。

■ 事前研修

| 日時 | 講師・場所 | 講義内容 |
|-------------------------|--|--|
| 5月9日(金) 16:30~18:00 | 講師：Penghuy Ngov 助教 場所：第3講義室、6階 | DFW の概要と参加者のグループ分けの説明。各グループでリーダーと副リーダーを選出する。 |
| 5月14日(金) 16:30~18:00 | 講師：島田弦 准教授 場所：第3講義室、6階 | 「日本の地方行政システムと地方自治の課題」 |
| 5月23日(金) 16:30~18:00 | 講師：三牧純子 特任准教授 場所：第3講義室、6階 | 「住民を巻き込みつつ、コミュニティ等の課題解決」 |
| 5月30日(水) 16:30~18:00 | 講師：トリイ ムプニ氏 (NGO, IBEKA) 場所：オーディトリウム、8階 | 「コミュニティー・アプローチによる課題解決」 |
| 6月13日(金) 17:00-20:00 | 講師：西川芳昭教授、龍谷大学 場所：第3講義室、6階 | 「日本の農村開発」(予定)、「農産開発に関する事例研究」 |
| 6月20日(金) 16:30-18:00 | 講師：西出覚氏、大台町役場企画課係長 場所：第3講義室、6階 | 「大台町の概要」 |
| 6月27日(金) 17:00-18:30 | 講師：西川芳昭教授、龍谷大学 場所：第3講義室、6階 | 「調査倫理」 |
| 7月11日(金) 17:00-18:30 | 講師：西川芳昭教授、龍谷大学 場所：第3講義室、6階 | 「調査実施例の紹介」 |

■ ワーキング・グループごとの調査準備

本年度は、参加学生各自の興味・関心に応じて、環境教育、茶産業、放置林の3つのWGが設けら

れた。使用言語は日本語及び英語の両方とし、主に参加学生同士で翻訳や通訳を行った。5月から8月にかけて、各WGは担当教員の指導の下、調査準備を重ねた。それぞれの調査課題の設定、調査時の希望訪問先の選定、詳細な質問事項の作成や調査方法の検討作業を進めた。

| グループ | 調査課題 |
|-------------|---|
| WG1 環境教育 | 一般的に、日本の多くの学校ではESDをいかに実践するかが大きな問題となっているが、大台町の役所の方、学校のスタッフそしてNPOのスタッフがESDをどのように考えていて実践をしているかを調査したいと私達は考える。本調査では、多様なステークホルダーの方々を迎え、ESDに関係する人々の考え方の類似点・相違点を提示する。また、ESD推進における学校とNPOの関係性も調査する。 |
| WG2 茶産業 | 大台町の製茶業は、多くの持続性に関する課題に直面している。その課題とは、海外・国内の経済の低迷と、消費者の消費行動の変化の両方からの課題である。本研究では、経済的持続性を目指す大台町の製茶業の現状および経済的影響を調べる。 |
| WG3 放置林 | 本研究では、大台町における市民社会・市民活動を研究の対象領域とし、大台町における森林管理という問題を放置林対策という側面から扱うことで、近年注目されている「放置林」という問題がいかなる実態を持つものかということを検討する。 |

■ 現地調査

大台町にて実施された3日間の現地調査の詳細は以下の通りである。

| | WG1 | WG2 | WG3 |
|---------------------------------|--|--|---|
| 9月24日 (水) 14:00 -17:00 | ・大台町の教育委員会へインタビュー | ・大台町の産業課へインタビュー | ・大台町の産業課へインタビュー |
| 9月25日 (木) 9:00 -17:00 | ・宮川小学校 訪問 インタビュー ・宮川中学校 訪問 インタビュー 質問表配布 | ・茶農家 インタビュー | ・宮川森林組合 訪問 インタビュー ・宮川森林組合 森林探索 ・宮川森林組合 ミーティング |
| 9月26日 (金) 9:00 -15:00 | ・大杉谷自然学校 訪問 インタビュー | ・大台町農業組合、茶業組合、商工業振興協会 訪問 インタビュー ・商店また大台茶に関するお土産商店 訪問 インタビュー | ・フォレスト・ファイターズ 訪問 インタビュー ・みやがわ森選組 訪問 インタビュー |

■ 結果報告会

結果報告会の詳細は以下の通りである。

| 項目 | 詳細 |
|-----|--|
| 日時 | 2014年11月20(木) 13:00-16:40 |
| 場所 | 大台町役場 大会議室 |
| 出席者 | 調査に協力してくれた関係者の皆様 |
| 報告者 | 国内実地研修参加学生 |
| 内容 | 13:00 大台町町長の挨拶 13:10 教育グループ「大台町における持続可能な開発のための教育 (ESD) の実践」 13:40 質疑応答 14:00 産業グループ「茶産業における経済の持続可能性—三重県大台町を事例として」 14:30 質疑応答 14:50 ~15:10 休憩 15:10 森林グループ「大台町における森林をめぐる諸問題」 15:40 質疑応答 16:00 全体質疑 16:40 閉会の挨拶 |

4. 担当教員と参加学生の一覧

以下の通り、計 16 名の学生が参加した。男性 9 名、女性 7 名の内訳となっている。

| | No. | Name | Dept | Sex | Nationality |
|-------------|-----|----------------------------|-------|-----|-------------|
| WG1 米澤彰純 | 1 | OHATA KOICHI** | DID | M | JAPANESE |
| | 2 | NGUYEN THI YEN HOA | DID | F | VIETNAMESE |
| | 3 | SARWAR AIZA* | DID | F | PAKISTAN |
| | 4 | VEUNG NARON | DID | M | CAMBODIAN |
| | 5 | ARAYA PENSOOK | DICOS | F | THAI |
| | 6 | JESSADAKORN KALAPONG | DICOS | M | THAI |
| WG2 島田弦 | 7 | SAR SOKHAVUTH | DID | M | CAMBODIAN |
| | 8 | KEO MOROKOTH | DID | M | CAMBODIAN |
| | 9 | ORAPIN ATCHARIYAKARN | DID | F | THAI |
| | 10 | UTUMPORN JITSUTTHIPHAKORN* | DID | F | THAI |
| | 11 | DAO XUAN SON** | DID | M | VIETNAMESE |
| WG3 藤村逸子 | 12 | MASUDA HIROSHI** | DICOS | M | JAPANESE |
| | 13 | WANG DING | DICOM | M | CHINESE |
| | 14 | KA GAIEI | DICOM | F | CHINESE |
| | 15 | UENO JINTA* | DICOS | M | JAPANESE |
| | 16 | REBECCA FERDERER | DICOS | F | AMERICAN |

(注) ** グループ・リーダー * グループ・サブリーダー

DID : 国際開発専攻、DICOS : 国際協力専攻、DICOM : 国際コミュニケーション専攻

5. 本書の構成

本書は、調査地である大台町役所役場、役場の調査協力者をはじめ、調査協力者にも送付されている。そして、当国際開発研究科のホームページからも閲覧可能となっている。日本の都市の先進的な開発事例の貴重な記録としても、本書が有効に活用されることが望まれる。

本書の構成は以下の通りとなっている。3つのグループ別の報告書が環境教育、茶産業、放置林の順に続く。英語報告書にはすべて和文要約が添付されている。

なお、本書に示された見解、提言、批判などは筆者である学生のものであり、本研究科または担当教員のものではない点にご留意いただきたいです。

実地研修担当助教
劉靖

大台町の概要

位置

三重県大台町は、三重県の中南勢部に位置し、伊勢湾に注ぐ県内最大の宮川の源流域から中流域に沿って東西に細長くひろがっています。明治 22 年の町村制施行により、旧大台町は三重県多気郡 17 町村の中の一つとして発足しましたが、その後近隣の村と合併を経験しながら発展し、「平成の大合併」により、平成 18 年 1 月 10 日、旧大台町と旧宮川村が合併して誕生しました。面積は、362.94 平方キロメートル、県内では最も面積の大きい町になりますが、その 90%以上を山林が占めています。宮川上流域となる町の西部は 1,000 メートル級の山々に囲まれた純山村地域、宮川中流域となる町の東部は茶畑・田んぼの広がる農村地域と言うように分かれます。宮川中流域で宮川と併走する国道 42 号は尾鷲、熊野方面と松坂方面を結ぶ物流・人流の基幹道路となっています。平成 18 年 3 月に、紀勢自動車道が町内まで開通したことにより、名古屋や京阪神方面へのアクセスが向上し、地域発展の新たな可能性も高まっています。

気候

町の気候は比較的温暖な南海型気候区分に属し、年間平均気温はセ氏 15 度(過去 5 年間平均)となっていますが、冬季には、氷点下になる日も見られます。町の年間降水量は 3,310mm(過去 5 年間平均)で、最も降雨の多い時期は 9 月です。近年、降雨や台風による被害が多く、平成 16 年 9 月宮川地域で台風 21 号による土砂災害で、死者行方不明者も出ました。

人口

大台町の人口は昭和 50 年以降減り続け、平成 27 年 2 月末現在 10,039 人(4,247 世帯、外国人を含む)です。これは、昭和 50 年に比較して約 25%の減少で、過疎化が深刻な状況にあります。特に若年層の減少が顕著で、年少人口(0-14 歳)は、昭和 50 年には総人口の 20.8% (2,777 人)でしたが、平成 22 年には 11.2% (1,170 人)になり、30 年間で 57.9%の減少となっています。一方、65 歳以上の高齢者は、昭和 50 年には総人口の 14.4%でしたが、平成 27 年度には総人口の 35.9%になると予測されています。少子高齢化は、町の重要な課題になってきています。

産業構造

高度経済成長やバブル経済とその崩壊を通して、大台町の農林業を中心とした産業形態は大きく変容してきました。大台町の産業別就業者の構成率は、昭和 50 年と平成 17 年の比較によると、第一次産業従事者は 26.5%から 10.0%、第二次産業従事者は 35.1%から 33.1%、そして第三次産業従事者は 38.2%から 56.7%というように変化し、全体に第三次産業へ転換してきています。現在、町の基幹産業は、西部地域が林業、東部地域が茶業となっています。大台町の茶産業は長い歴史

を持ち、全国茶品評会で高い評価を収めています。平成16年7月、大台茶をはじめ、地元産の新鮮な食材・特産品を直売する「道の駅 奥伊勢おおだい」がオープンしました。地元で栽培された農作物を使用した料理を提供する食堂も併設され、大台町内外からの来訪客に地元の農産物をPRする良い場になっています。

林業も大台町の経済に大きく貢献しています。大台町では、町面積の93.2パーセントを森林が占めており、森林の総面積は33,808ヘクタールです。森林全体のうち77パーセント（26,071ヘクタール）は民有林であり、17パーセント（5,818ヘクタール）は国有林、そして、6パーセント（2,007ヘクタール）が公有林（自治体の管轄）です。しかし、近年、林業の採算性の悪化による施業停滞から、保水・防災など森林の持つ公益的機能が低下しています。森林機能を改善するため、平成13年に新たに制定された森林・林業基本法に基づき、町は森林の多様な機能を区分し、森林整備を実施してきました。森林の機能別区分「大台町森林ゾーニング」事業により、町内の森林を環境林、生産林および人との共生林へとゾーニングし、森林組合を始め第3セクター方式の林業会社や林業事業体を中心とする森林資源の管理体制で整備を実施しています。また、平成20年から、町はオフセット・クレジット（J-VER）制度を取り入れ、町有林が吸収する二酸化炭素の販売も行っています。この試みは東海地方ではじめてで、全国では3例目となります。

「持続可能な開発のための教育」環境づくり

大台町は豊かな自然に囲まれた町です。平成13年に設立された特定非営利活動法人「大杉谷自然学校」は大台町における環境教育の中心として、町教育委員会や小中学校と協力し、環境教育に関する事業を行い、持続可能な社会の創造の必要性、方法を次世代に伝える活動をしています。

まちづくりの基本姿勢

『第1次大台町総合計画』（前期：平成19年度－平成23年度；後期：平成24年度－平成28年度）によると、大台町を取り巻く状況は、地方分権、過疎化、少子高齢化の進行、環境や資源の問題、さらに住民の価値観の多様性など大きく変化しています。そのため、総合計画では、新たな発想で長期的視野に立った「町民が主役のまちづくり」を推進することが必要としています。広大な森林、日本一の清流「宮川」、貴重な溪谷など美しく豊かな自然資源や、伊勢神宮や熊野街道の歴史や文化など、大台町の特徴を活かした個性的で魅力があるまちづくりを推進し、“自然人びとが幸せに暮らすまち”を目指し、「美しい環境」、「産業振興と交流」、「健康と福祉」、「教育と文化振興」および「安全・安心」の五つの柱が支えるまちづくり理念を進めています。

日本の他の地方都市と同様に、大台町も多くの構造的課題を抱えつつも、各行政分野において、地域の特性・優位性を活かした町づくりの取り組みを行っています。そして、今日の日本はもとより、途上国の地域開発を考えるうえで沢山の有益なヒントを提供しています。本報告書が、大台町の経験を通して、日本の地域開発の課題、そして今後の方向性に関する理解の一助となれば幸いです。

参考

『第1次 大台町総合計画』

大台町『大台町史 通史』(平成8年)

大台町ホームページ (<http://www.odaitown.jp/>)

実地研修担当助教
劉靖

Working Group 1

Implementation of Education for Sustainable Development in Odai Town

和文要約

1. Introduction
2. Overview of Odai town
3. Research Objectives
4. Research Question
5. Literature Review
6. Methodology
7. Significance and Contribution
8. Education for Sustainable Development in Odai Town
9. Conclusion and Suggestions
10. Acknowledgements
11. References

Written by

(Working Group 1)

Koichi Ohata**

Aiza Sarwar*

Araya Pensook

Nguyen Thi Yen Hoa

Veung Naron

Jessadakorn Kalapong

Group Advisor

Associate Professor Akiyoshi Yonezawa

**Group Leader

*Sub-Leader

和文要約

三重県の大台町は、山や川など豊かな自然に囲まれた町である。しかし、近年の大都市への一極集中の影響を受け、大台町は過疎化の問題を抱えながら周辺の村と合併を繰り返してきた。大台町から人々が離れてゆけば、公共サービスを提供することも困難になる。特に、若い世代が町を支えなければ、町として存続してゆくことは不可能になる。そこで我々は、大台町に必要なのは、「持続可能な開発のための教育(以下 ESD)」を通して、町の持続性を保ってゆくことではないかと考えた。ESD は経済・社会・環境の側面から、環境学習や国際理解教育などを通して、現代社会の諸問題と向き合うものである。大台町では、言葉としては ESD と明示はしていないものの、その精神を体現する形で周辺の豊かな自然を利用した環境学習が盛んにおこなわれている。また、大台町では、教育委員会、NPO 法人、公立学校が互いに連携して環境教育を推進しており、三者の関係性を把握することは、大台町における ESD の実践の現状と課題を発見することに繋がる。そこで、我々は、大台町の教育委員会、三瀬谷小学校、宮川小学校、宮川中学校、NPO 法人である大杉谷自然学校の方々にインタビュー調査を実施した。また、中学生の ESD に対する理解を量的調査するために、中学3年生にアンケート用紙を配布し、回答をいただいた。

調査の結果、教育委員会に関しては、ESD に関しては明確なガイドラインが中央省庁から指定されているわけではないことがわかった。ゆえに、教育委員会はある程度の柔軟性を持って、環境教育を町として積極的に導入し、NPO と連携し、学校に提供している。訪問した小学校二校では、ESD という言葉はあまり浸透していなかった。しかし、環境教育を熱心に取り入れており、特に NPO と非常に密接に協力し、豊かな自然を利用した活動を行っていた。中学校は、小学校とは事情が異なり、明示的な環境教育は行われていなかった。中学生は課外活動や受験勉強に忙しい。ゆえに、正規科目以外を入念にする時間は割けないのが現状との意見を聞いた。中学生に実施したアンケート調査の結果、生徒たちは、ESD という言葉は聞き慣れていなかった。しかし、環境問題へ関心を持ち、大台町の環境にも非常に敏感であった。

NPO は、大台町の環境教育の中心として機能していることが明らかになった。NPO では環境教育はもちろんのこと、伝統文化、伝統料理を紹介する機会も設けており、総合的に大台町の持続的発展に寄与している。他セクターとの連携に関しては、すべての面で機能しているわけではないとの問題点も浮き彫りになった。調査結果から、我々が導き出した課題点は三点ある。一点目は、ESD に関する明確なガイドラインの欠如による解釈の相違。二点目は、正規科目への偏りによる、環境学習の時間削減。三点目は、教育委員会と NPO の連携が必ずしも機能していない点である。

以上の調査結果から、我々は次の三点の提言を行いたい。まず、ESD に関する評価、フィードバックをより入念に行うことは非常に重要ではないだろうか。ESD は各学校、教育委員会、NPO が協力して達成できるものである。そのためにも評価を下し、教師、生徒などからフィードバック

クを得ることは将来につながると我々は考える。次に、教育委員会は大台町の持続的開発のために、より中心的な役割を果たすことができると考える。また、NPO とより密接な連携をとることができれば、より効果的な活動を提案できるだろう。最後に、NPO の活動は現在環境教育が主であるが、文化横断プログラムなど、より多岐に渡るプログラムを提供することも重要であると考ええる。持続可能な開発のための教育は、子どもたちにだけ提供して達成できるのではなく、すべての人々が年齢を問わず未来に向けて問題を考えることで進んでゆくものである。ゆえに、より多くの人々が参加できる活動も将来必要になるのではないだろうか。

<謝辞>

最後になりましたが、本調査におきましては、大台町の教育委員会、三瀬谷小学校、宮川小学校、宮川中学校、NPO 法人大杉谷自然学校の皆様のご協力のもと実施することができました。また、熱心に温かく指導をして下さいました米澤彰純先生、調査を設定して下さいました島田弦先生、劉靖先生、通訳として同行いただいた梶浦真由美様のお陰で国内実地研修を無事終えることができました。皆さま誠にありがとうございました。ここに感謝の意を表します。

1. Introduction

Education for sustainable development (ESD) has been recognized worldwide as one of the very important aspects in the realm of international development. ESD has gone beyond traditional education, which focused mainly on schooling, increasing literacy and the mere interaction between teacher and student to involving communities, stakeholders and covering as many aspects of education as possible for the sole purpose of a better future and sustainable society. Japan, one of the world leading institutions for education, has seen the importance of ESD, grasped this idea and implemented it through its formal education nationwide.

However, although Japan has put the ESD in forefront in its education, the very idea of education for sustainable development is still little in recognition and only part of the idea has been emphasized. In Odai town for example, a small city located in Mie prefecture, central Japan, right in the middle of natural resources such as forests, mountains and river, it is clear that here ESD is very much interpreted as and implemented in Environmental Education. This is actually not incorrect. But considering that ESD consists of 3 important domains: Environment, Economy and Social (UNESCO, 2012), its implementation in Odai town is still not well covered and far behind the goals.

What constituted the lack of better focus is rather ambiguous, as it is concerned with the stakeholders' top-down relationship in the whole country education system. In the case of Odai town, there is a close link between board of education, formal schools and an NPO concerning the environment education. The NPO nature school has played a very vital role in enhancing knowledge of environment, natural resources sustainability and coexistence between human and their surroundings through outside activities and real practices with young children and the community. The board of education and schools have cooperated in budgets, general guidelines from the Ministry of Education, Sports, Science, and Technology (MEXT) and the participation of private sectors and students. Although it is unclear whether or not other domains of ESD: Social and Economy, are being implemented or even theorized, these three stakeholders have been working closely together in the realm of environment study in Odai town.

The purposes of this research, then, are to learn how ESD has been interpreted in Odai town together with how the interconnected relationships of the three stakeholders - the local government, formal schools and the NPO - has engaged and propelled the ESD activity, how much the NPO has involved in education for sustainable development in Odai town, through what activities and how much is their role.

All the questions were answered through interview and questionnaires. Interview was done to all three stakeholders while questionnaires were targeted at one of the target groups' students focusing on their understanding of environmental study and ESD. The research had carried out for 3 days in Odai Town, Mie prefecture.

ESD is not a new term but it is somehow very hard to grasp when it comes to implementation. The policy makers may find this idea very idealistic. When put into implementation, it is rather impractical and good result is not guaranteed, and lets alone the fact that this process is time-consuming before the result is

visible. In the case of Odai town, besides the aforementioned setbacks of ESD, it also has the its own problems such as the class hour for ESD is reducing or even disappears when the students reach a certain level of education because they need to focus on entrance examination and so on so forth. Thus, ESD, though being fostered in kids since young age, is rather abandoned in the long run. As well as the fact that Social and Economic domains of ESD are little mentioned in Odai town's ESD is also an essential step needed to be fulfilled.

2. Overview of Odai town

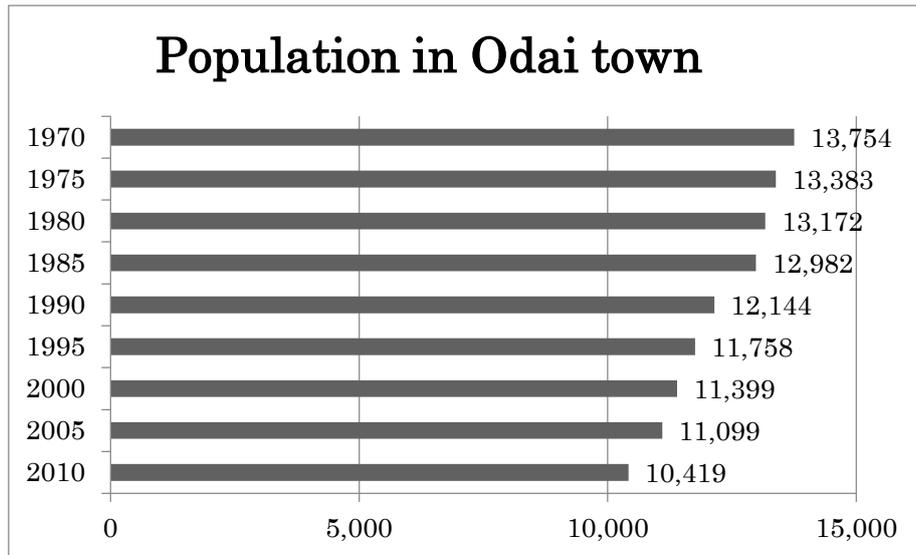
2-1 History of Odai town

This section will give a brief introduction on Odai town's history, population, industry, and education. Odai town is located in Taki district of Mie prefecture, covering an area of around 362.94 square kilometers. Originally, tea industry has been an important industry of the town so that many tea plantations can be seen. In 1956, Odai town was established from the merger of Misedani village and Kawazoe village. Therefore, history of Odai Town started from 1956. After that in 1999, the national government promoted municipal mergers system which was known as the great Heisei Mergers (平成の大合併). At that time, Japan achieved economic growth. However, Japan had been facing many problems such as overconcentration of population, industrial factories, and government organizations in Tokyo. In contrast, the rural areas in Japan had experienced depopulation which consequently contributed to difficulties for these areas to provide public services for the residents. Then, government began the municipal mergers to build solid financial basis. Without exception, Odai town also merged Miyagawa village and became Odai town in 2006. After the mergers, Odai town has managed to sustain its public services. However, the financial constrain remains to be a difficulty for the town.

2-2 Population of Odai town

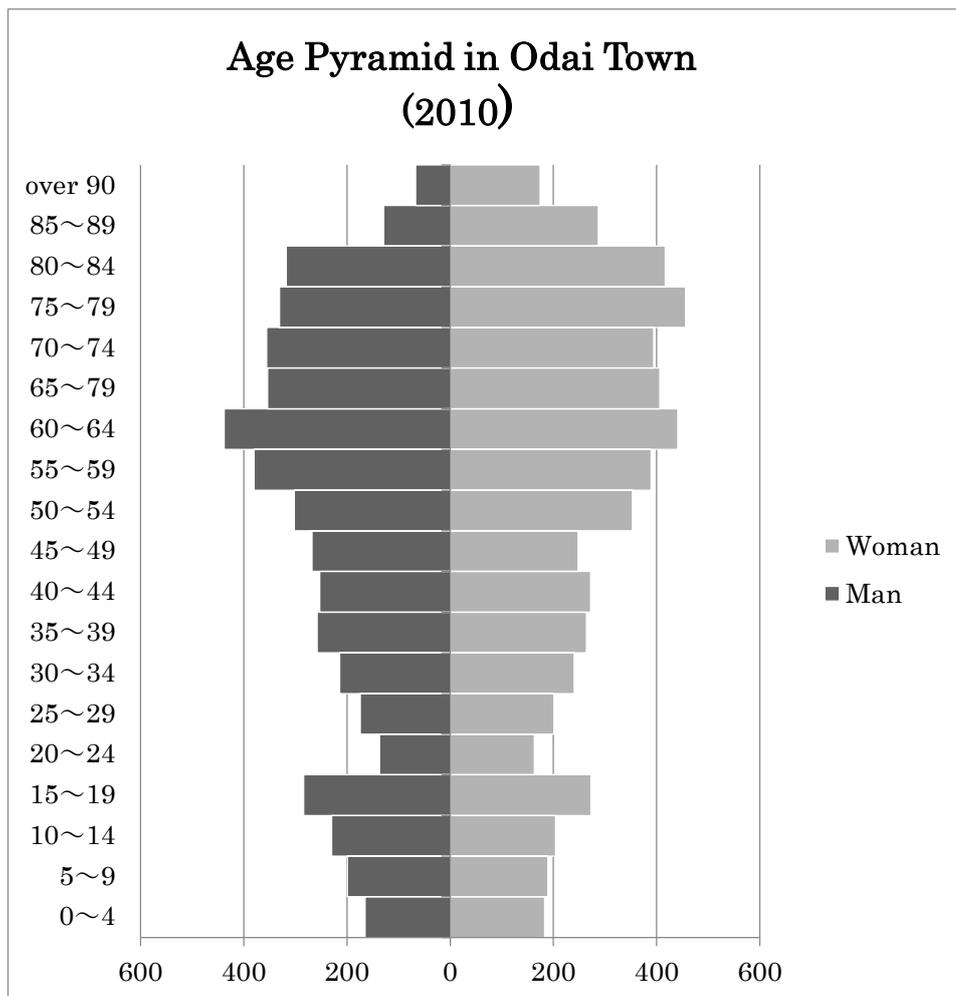
About the population, now Odai town has 9,786 people. As showing in figure 1, Odai town has been troubled by its depopulation situation recently.

Figure 1 Population in Odai town



Source: National institute of Population and Social security Research (March, 2013)

Figure 2 Age Pyramid in Odai Town



Source: National institute of Population and Social security Research (March, 2013)

Figure 2 illustrates that Odai town is now experiencing the decreasing number of children. It is actually a serious problem for many rural areas of Japan because, if young generations leave their places to Tokyo, it would be difficult to continue the communities themselves. Odai town also have this problem today.

2-3 Education in Odai town

This section will give general background about education in Odai town. Odai town has four elementary schools, three junior high schools, and one senior high school. Illustrating in table 1, there are not so many teachers and students in this town. Schools in Odai town are worried about the decreasing number of the children. It is one problem. The feature of schools in Odai town is to conduct ESD in the form of environmental education deeply. Odai town’s board of education has high level flexibility in conducting the ESD or environmental education, because the government does not provide specific indication on the implementation of ESD. It means that Odai town has been working to promote environmental education by their own. We can say that Odai town conducts environmental education effectively by utilizing their abundant nature.

Table 1 Number of schools, Teachers, Students in Odai Town

| | Number of school | Teacher | Student |
|---------------------------|-------------------------|----------------|----------------|
| Primary school | 4 | 56 | 456 |
| Junior high school | 3 | 45 | 215 |
| High school | 1 | 41 | 195 |
| Total | 8 | 142 | 866 |

Note: We make it from the answer of Odai Town officer

Source: Odai Town Office

3. Research Objectives

While ESD was initiated at the national policy making level, interpretation and implementation of the policy at the local level are very significant elements for the achievement of ESD. This study aims to discover how the ESD initiative of Japan has been brought to practices by concerning parties at the local level, including the local government, schools, and also NPO. To gather with the interpretation, this study intends to illustrate relationships between those concerning parties which can consequently contribute to better understanding on ESD implementation.

4. Research Questions

In order to answer the above-mentioned objectives, the five research questions were formed as below. The first question aims to examine how schools, local government and NPO have interpreted ESD and have practiced at the grassroots level. Following the first question, the second question focuses on the relationship between formal schools and NPO in the ESD activities in Odai Town. Then to find out more about the ESD activities, the third question explores various kinds of ESD activities conducted by formal schools, in collaboration with NPO in Odai Town. Since NPO has played crucial roles in the ESD activities in the town, we formed the fourth question to see how NPO have supported the ESD activities and cooperated with various stakeholders in the town. Finally, the last question seeks to understand how NPO was established to get involved in the ESD activities in the town. Below are the five questions for this study.

1. How ESD has been interpreted and implemented in Odai Town?
2. How is the relationship between formal schools and NPO in Odai Town?
3. What kinds of activities are conducted in corporation of formal schools and NPO in Odai Town?
4. What are the roles of NPO in Odai Town?
5. How NPO get involved in the activities in Odai Town?

The following section is literature review which gives a brief overview of ESD and its implementation in Japan. Within this section, the issues and challenges are also captured by previous research studies in the field of ESD, especially in Japan. From these findings, the implementation of ESD, initiated by the Japanese government, may not be realized without profound understanding of ESD practices at the grassroots.

5. Literature Review

5-1 Introduction to ESD and Its History

ESD was conceptualized and popularized in the 1987 World Commission on Environment and Development report, stressing the development of the present world without compromising the resources for the future generation. In 1992, the Rio Declaration was formulated to set out 27 principles to achieve sustainable development, with complementary guiding document, Agenda 21, viewing education as a key to achieving sustainable development. Generally accepted, balancing environmental, societal, and

economic considerations in the pursuit of development and an improved quality of life is a way to achieve sustainable development (see UNESCO, n.d.; Maruyama, 2010).

In December 2002, the United Nations declared the years 2005-2014 as the Decade of Education for Sustainable Development (DESD), launched in 2005, to integrate the values, principles and practices inherent in sustainable development into all the aspects of learning. Obviously, international, regional and local stakeholders around the globe have recognized the importance of ESD and demonstrated their practical commitment to learning to live sustainably. Furthermore, the three pillars of sustainable development are the economic, the social and the environmental, which is a global goal to be achieved (Richmond, 2010).

Truly, the establishment of the 2005-2015 DESD was mainly initiated and proposed by Japan along with non-governmental organizations (NGOs) in 2002 to the UN World Summit on Sustainable Development in Johannesburg. Through the Japanese governmental efforts concerning ESD, the government established the Inter-ministerial Meeting within the cabinet in December 2005 for the United Nations DESD (UNDESD) to closely coordinate administrative bodies, to measure and to promote the effective and exhaustive implementation of ESD (UNDESD Japan Report, 2009; Maruyama, 2010). Later in March 2006, the Japanese Action Plan on DESD was developed to realize the goals of ESD.

In April 2009, the world came together in Bonn, Germany, to develop mechanisms for the improved cooperation and implementation of ESD among the developed and developing countries in order to move into the half decade of DESD. Additionally, many other stakeholders such the Japanese Commission for UNESCO, together with United Nations University and Asia-Pacific Cultural Centre for UNESCO, were actively involved in reviewing the implementation of ESD and its challenges. As a result, in December 2009, the contexts and structure for ESD were defined for the future direction and implementation of ESD through a review of the ESD activities and research studies at various levels of local, national, regional and international community's (Maruyama, 2010). The timeframe for the end of the UN Decade will be hosted by Japan in this 2014, while the results of the implemented ESD around the world have not been satisfactory (Gross & Nakayama, 2010), so more efforts and budget will be more to accomplish the ESD goals.

5-2 Characteristics of ESD

Since the development of the 2005-2015 DESD in 2002, many stakeholders define ESD in different ways, but perhaps hold the same concept of sustainability or sustainable development. Among the stakeholders, UNESCO (2012) defines ESD:

In its broadest sense, ESD is education for social transformation with the goal of creating more sustainable societies. ESD touches every aspect of education including planning, policy development, program implementation, finance, curricula, teaching, learning, assessment, administration. ESD aims to provide a coherent interaction between education, public awareness, and training with a view to creating a more sustainable future.

Through the definition given by UNESCO (2012), ESD emphasizes the following characteristics:

- Dealing with three perspectives which stress the idea of *sustainability* – environment, society, and economy – with an underlying dimension of culture
- Using a variety of teaching techniques in promotion of participatory learning and critical and thinking skills
- Promoting life-long learning
- Is based on local needs, perceptions and conditions, but acknowledges that fulfilling local needs often has international effects and consequences
- Engaging formal, non-formal and informal education
- Accommodating the evolving nature of the concept of sustainability
- Addressing content, taking into account context, global issues and local priorities
- Building civil capacity for community-based decision- making, tolerance, environmental stewardship, workforce adaptability and quality of life
- Being interdisciplinary: no single discipline can claim ESD for itself alone, but all disciplines can contribute to ESD.

5-3 ESD and Its Practices in Japan

Although ESD has not been widely understood in Japanese communities, the Japanese school education and curriculum has adopted and introduced the concept of ESD in the form of ‘Integrated Studies (IS)’ rather than an independent subject, which covers various aspects of education such as international understanding, information education, environmental education, health and welfare education, and other education forms. The essence of ESD through IS allows students and teachers from primary to upper secondary schools to learn realize the importance of sustainability. Although hours for IS has decreased in the recent curriculum reform, the new form of Course Study (CS) has come to revitalize the concept of ESD in Japanese schools across the country (Maruyama, 2010).

Although ESD introduced and taught in Japanese schools and universities, it seems ESD in Japan has not been successful in many cases, unlike the government’s expectation. Several problems have occurred in both higher education and early childhood education levels. Depending on the literature review and questionnaire survey for both undergraduate and postgraduate programs in Japanese universities, there was no connection or cooperation between ESD in universities and other levels of school (Kitamura & Hoshii, 2010). In other words, universities conducted ESD activities, without linking with previous activities of students and the collaboration with others.

Moreover, from kindergarten to universities, ESD mainly focuses on environmental education. Many other aspects of sustainable development are not mentioned in education. In one research, Inoue (2014) stated a concentration on education of nature-based activities and resource savings in primary schools,

already taught in kindergarten and in culture of Japan. Therefore, it was not a new education for students, but making them unable to understand the wide meanings of ESD. Even in official laws, regulations and policies, the Japanese government also tends to use the term “environmental education”, such as Law for Enhancing Motivation on Education Conservation and Promoting of Environmental Education, although they were revised several times.

After the issues of Japanese ESD at early childhood education in particular figured out, a need to clarify the meanings of both environmental education and ESD clearly has to be done for educators and the public. Moreover, four key concepts should be brought out to improve the performance of ESD: “critical thinking, children’s active participation, an ecological worldview and empathy with nature” (Inoue, 2014, p. 89). Although these concepts are not new, implementing them does not work dramatically. Learning from diverse cultures is a positive method to activate these concepts into real education in Japan. Japanese educators could find suitable approaches from other countries to practice, but not applied totally their methods (Inoue, 2014).

6. Methodology

In order to answer all questions of this research, it is necessary to use both primary and secondary methodologies. The secondary methodology of this research depended on previous studies to bring out information of ESD in Japan generally and in Odai town particularly, such as formation of ESD in Japan, history of NPO, etc. These pieces of information were collected from accuracy resources, for example, official publications or government websites.

The primary methodology of this research includes both qualitative and quantitative research methods to find out opinions of different groups of people in Odai town about ESD and also the relationships between local government, NPO and formal schools in term of ESD. Firstly, interview, which is a qualitative method, was applied to NPO, the board of education and teachers. We interviewed the board of education of Odai town about ESD policies and its implementation in the town, as well as its functions and relationships with schools and NPO. We interviewed presidents of three schools including Misedani Primary School, Miyagawa Primary School and Miyagawa Junior High School. The interview gave a clear picture about the situation in classes on how ESD was interpreted and taught to the students. Then we interviewed the president and a staff of NPO nature school. From the interview, concrete understanding about environment education activities that had been conducted in the town, as well as a clear picture of its relationships with schools and the local government were brought out.

Secondly, a questionnaire as a quantitative research method was also employed in the research. The questionnaire was applied to junior high school students in order to know what and how they perceived about ESD. Through this method, the real statistics were brought out and used to have the most accuracy estimations.

7. Significance and contribution of study

The focus on the idea and practicality of Sustainable Development among people in Odai town especially starting from the young age and through education is one of the best methods for enforcing the bright future of overall development in this local community. Younger generation is one of the most important assets in the realm of local community development but it requires the right and practical education for sustainable development to thrive. Odai town is rich in natural resources and intact abundant environment, but it would mean nothing if the next generation do not see this significance. Thus, this study hopes to be the source of information for Education for Sustainable Development (ESD) for students, teachers and other stakeholders, to realize how important it is to utilize the assets they have while also be able to preserve for the next generation and contribute to the long-term local community development. The practice of ESD by NPO, school and local community that have been conducting for years is a very good start, however, this study hopes and aims further to the point that it can make the difference or better the situation such as more variety in implementations on ESD, fixing the current flaws, develop more practical ESD and policy recommendations, so that Odai town and people will be able to sustain themselves in the tough future ahead.

8. Education for Sustainable Development in Odai Town

8-1 Interpretation of the term ESD in Odai Town

8-1-1 Interpretation by the Odai Town

According to the interview of the education board of Odai Town, the town does not have a clear and specific guideline for ESD. The term ESD tends to be interpreted to environmental education which is usually practiced in schools in Odai town. One of environmental education goals is to make children of primary and secondary schools recognize the importance of nature and environment in their area after they move to urban areas. The town regards Osugidani Nature School, which is an NPO, as a center for environmental education in Odai town. The town provides subsidy to the Osugidani Nature School in offering different activities to both local residents and non-residents.

There are two main approaches of environmental education in Odai town. One is to utilize the nature school as a central function of the town. The second is that primary and secondary schools and the town implement environmental education as school education, which is no strategic relation but having the same goal as a whole in terms of education for environment.

8-1-2 Interpretation by the schools

We have conducted interview with two primary schools (Misedani Primary School and Miyagawa Primary School) and one junior high school (Miyagawa Junior High School) in Odai town. As same as the local government agency, the term ESD is not a familiar term to the schools. The term is understood to have

similar contents to environmental education. Various environmental education activities have been conducted especially in the primary schools in order to allow pupils to learn and love their nature and environment, and to teach students how to protect the environment.

For example in Misedani Primary School, Each grade has different activities. For example, the first grade students learn how to plant morning glory, while the second grade students plant cucumber, and the sixth grade with sweet potatoes the third grade plant Bell Pepper, etc. General Class in environment includes activities of 'reduce, reuse and recycle' to see the environmental problems and how to fix it. The fourth grade students do these activities four times a year. There is an activity called "*future forest*" done with the nature school. The fourth grade students go into the nearby forest and observe its situations such as the difference between wild forest and artificial ones (human planting). Wild forest condition is not so good later found, as so many weeds are spread across the forest. Unwanted weeds, wild plants and wood called "cedar" are too dense that no sunlight can reach though to the ground and that resulted in a not very good quality wood(log) and also soil (wood turns bad due to the said reason effects the economic here since it is hard to sell those logs in the markets).

However, the environmental education activity is not practiced in junior high school level. That is because the junior high school students need to prepare themselves for an entrance examination of senior high school. Moreover, the students mostly spend their free-time at school for club activity which is of their interests. Therefore, the environmental education activity has worn off at this level.

Understanding of the students

According to our survey by questionnaire to the junior high school students, almost all of the student also have no idea about ESD. However, they know and understand about environmental education in a certain level despite no environmental education activity in their school. They had learnt it since they were in primary school. With such a basic knowledge, the junior high school students can see environmental problems in the town such as water pollution, air pollution, garbage etc. They have experienced environmental education activities such as tree planting, garbage collection and natural disaster prevention, and agree to continue those activities.

8-1-3 Interpretation by the NPO

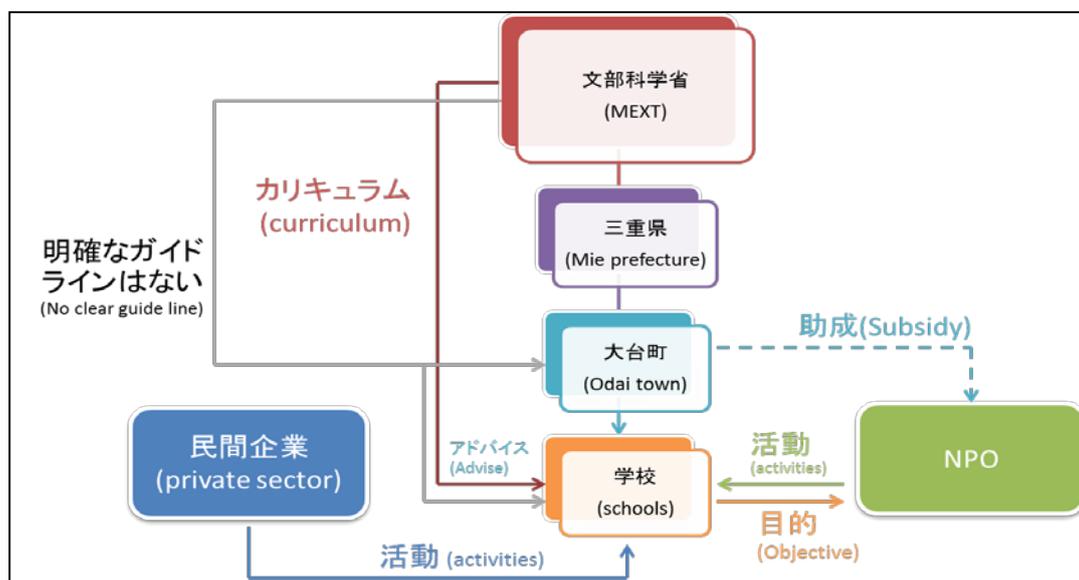
The NPO, Osgidani Nature School, also interprets ESD as environmental education. The Nature School aims at having participants recognizing the importance of nature. Therefore, most of the activities are organized to let participants, especially primary school students, experience living with nature. The objectives of NPO are mainly to foster students the importance of nature, those residing in Odai Town specially seem to be less conscious about their surroundings than those from outside, and also to offer these activities to people so that they have a chance to think about society.

However, apart from environmental education activities, the Nature School also conducts activities concerning sustainability in other areas such as tradition and cultures reservation, immigration promotion, and disaster prevention as well. One of the interesting activities is immigration promotion. The Nature School finds and repairs empty houses (in Odai town), and then invites people to stay and experience life in Odai town in order to promote immigration to Odai town. Another one is cultural preservation. The Nature School researches about traditional cultures in Odai town in order to preserve them, for example, traditional fishing, festival, Ayu cooking and so forth. The study will help to pass forward these cultures to the next generations. In addition, the school also studies about plants and animals in the area, in cooperation with science museum, to preserve these local resources.

The feedback of students who had participated NPO`s activities is rather positive. Not only students enjoyed the activities but also acquired new knowledge and experiences about their surrounding nature and culture. Students learn how to live and nurture their rich environment. Those previously participated agreed to continue what they had learnt from the NPO, while some even came back to help conducting the activities.

8-2 Relationships between the Odai Town, Schools and NPO

Figure 3 Relationships between the Odai Town, Schools and NPO



8-2-1 The Odai Town

Miyagawa village was integrated to Odai Town in 2006. In 2001 the primary school there was closed. There was a national project called Field Museum supported by the MEXT to promote local existing resources. Thus, based on Miyagawa village initiative, Odai Town proposed and decided the nature school there for Field Museum. The nature school as one of the national projects was established to make use of abandoned school campus and existing facilities for environmental education.

This NPO is not independent from the Town, but it is a kind of subsector involving with Town. The Education Board is a legal system, requesting the town the project needed to be done by the town and the town itself does budget planning. Then, NPO applies for it. This is a contract between the NPO and the town to implement public activities such as environmental education. That is why Education Board tries to provide these activities to the nature school.

The Education Board has two functions of governing the public schools and social education for local people such as Field Museum, and attracting outsiders to participate in these activities. Outsiders as users have to pay for the services offered by the nature school, while residents do not have to pay for that. (The most expensive one is 42000 yens for five days, while the cheapest one is 800 yens for children. Kindergarten children pay 600 yens because of the town subsidy and the nature school plan.)

8-2-2 *The Schools*

For the schools in Odai Town, NPO is a leader in conducting environment activities. They come up with the ideas and then cooperate with schools, teach student first-hand experience with everything to deal with nature, plating, preserving, cooking etc. They are the one who emphasis and reinforce the importance of nature and good environment within the children. By cooperating with the NPO, many environmental education activities in the formal schools have been done by the NPO aiming at enabling children to see the importance of intact nature and environment of Odai town. They conduct the activities and schools send students to join these activities range from camping, fishing or learning about forest, trees, observing animal in the river, practicing reuse, recycle and reduce and so on.

Apart from collaboration with the NPO, an interesting aspect of schools in Odai Town is their collaboration with private companies around that area. For example, Misedani Primary School has cooperation with Sharp and Aeon in conducting environmental education activities. These private companies can provide various tools and instruments for students to do experiment such as water cleanliness checking and solar system study etc.

8-2-3 *NPO*

From the NPO's viewpoint, the NPO organizes the activities, in cooperation with formal schools, to educate the students about environmental education. The activities are held upon requests of Odai town office, NPO, companies or individuals. The formal schools can suggest some new activities besides the NPO's purposes. The Nature School organizes various activities for the participants to experience environment and cultures, for example, camping, trying traditional food, and forest growing. Especially, for forest growing, the nature school teaches the participants to consider both biodiversity and disaster (landslide) that may happen from the forest. Moreover, the continuity of these activities is needed.

8-3 Challenges for ESD in Odai Town

8-3-1 Lack of Clear Guideline about ESD from the Central Government

ESD is an initiative from Tokyo. It is a policy that was designed by the central government and requires many levels to get involve into it in order to be successfully implemented. However, according to the interview of the Education Board of Odai Town and also the schools, we found that there is no guideline or clear explanation about ESD from the central government for the town or schools to follow. This may be a reason why all the concerning parties in Odai Town have no clear picture about ESD. Lack of this kind of concrete connection and communication between the national policy decision making level and local policy implementation level is a challenge for implementing ESD. And, actually bottom-up communication will greatly contribute to the success of ESD practice. The national level parties need to know what really happen on the ground so they can redesign the policy or give support to the practitioner appropriately.

8-3-2 Financial Constrain of the Odai Town

Many challenges occur during the implementation of environmental education. The school education has higher value than environmental education since school boards have to balance between the academic performance, achievement and the purpose of education about environment. Odai Town's Education Board prioritizes the importance of education. Since school education is viewed valuable, the environmental education is given less attention for primary school and junior high school, especially. Furthermore, the budget capacity is limited, meaning that this education board is not financially independent from the town and the prefecture when implementing its project, while as a whole it seems to have autonomy. Odai Town experienced the integration of Miyagawa village. After ten years of integration, the government ensure the same amount of income to support the integration. In 2016, this amount of money will be reduced in about 300 million yens. The budget constraint deters it from fully exercising its role. For example, the budget for promoting ESD activities through the cooperation with the nature school is not obtained easily from the town. The well-established understanding of the importance of environmental education activities must exist between the education board and the town.

8-3-3 Assessment of School Performance and Time Limitation

Environment study is very important in this town but it is not included in the subject which will be assessed by school assessment. The environmental education is vital, but students need to focus at some other important core subjects as well. And, therefore, the schools have to balance all the subjects, cannot focus only on the environmental education.

This constrain even more visible in the junior high school level. Miyagawa primary school students

continue their study in the Miyagawa junior high school. At this level, the school do not have any specific activity to teach students about environment education since the emphasis on other required subjects, including mathematics, science, Japanese, economics, and others, is obvious. According to the school principal, “primary schools have room to utilize study hours for other activities like environment study, but in junior high school they have to manage their schedule according to specific subjects because every subject has fixed schedule and no one can change. Morale education and science education both are important but due to time limitation they cannot focus on both”. Many years ago, children were taught manners by their parents, but this situation has changed. Schools have more pressure to teach everything within limited time. This is one of the main problems.

In addition, students shall prepare for entrance exam to enter senior high school, so they have to focus on their core subjects. They have general study hours probably (2h/week) which they utilize to prepare for school events and job manners. At the end of September, they have short internship program (3 days) in which students join companies (gasoline stand, michi no eki, post office, water plastic bottle company, kindergarten school) to get basic knowledge of work.

8-3-4 Attractiveness of NPO’s Activities to the Local People

People in Odai Town are very close to the nature and environment there. They are familiar with the beautiful nature and clean river which they have seen every day since they were born. However, that actually causes the children in the town to overlook the attractiveness of the town and rarely participate in the environmental education activities. All the concerning parties can only hope that these children will see the importance and attractiveness of this place when they grow up and move out to urban areas.

Moreover, the decreasing number of children in the town makes the decrease of the school’s revenues. As the Nature School is subsidized by the town, to some extent it is considered as a financial competitor for other projects of the town. We have also observed that there is no solid relationship between the nature school and the community. It seems that the role of the nature school can be not accepted by the local people. They may need more effort to make relationship with local people.

9. Conclusion and Suggestions

9-1 Conclusion

ESD is not a new term but it is somehow very hard to grasp when it comes to implementation. From the questionnaire, we revealed that most students understand well about environmental issues and importance of sustainable development without the concept of ESD. There are two main reasons why they understand these things. One reason is that most students have learned environmental issues in the primary school and experienced some activities with nature in NPO. Students can understand what should be done to preserve nature when they are child.

Secondly, Odai town have been abundantly blessed with nature and clean river. It means that people unconsciously understand the fact that nature should be preserved for the sustainable development and future form the childhood. President of Miyagawa junior high school said that we do not teach environmental issues especially in the class, but students naturally understand preserving nature and resources are essential for Odai town and this is the education. Therefore, we can say that students have proper knowledge about environmental issues and sustainable development to some extent from the questionnaire in Miyagawa junior high school. Moreover, there are few issues to be resolved related to proper implementation of ESD.

9-2 Suggestions

According to our experience during field work we would like to give tentative suggestions which can be work in Odai town.

First of all we would like to begin from Schools of Odai town they should consider ESD as an important factor like other subjects. Assessment and getting feedback of students are another important factor; for example how ESD changes required how teacher teach not only what they teach because to meet the globalization requirements we need to change our practices. Sustainability is not only a curriculum issue, but also requires the involvement of whole school.

Secondly, education board has an important role by making policies and providing guidelines to schools based on this information our suggestion are; they can form a school sustainability plan to give proper and clear guideline about ESD.

By considering local government role we would suggest them to invite stakeholders and provide them opportunity to open new firms it may help to improve all sectors. Local government can also form a clear guidance to provide a precise guideline to NPO which is already working in Odai town because there is a communication gap among NPO and local government and most of the NPO activities are held upon requests of Odai town office.

Finally, NPO, the leader in conducting environment activities is in cooperation with formal schools, to educate the students about environmental education. Unfortunately, NPO is also facing couple of challenges which are mentioned earlier. Based on those challenges we suggest them to introduce new activities such as cross-cultural understanding to give awareness about how people from different backgrounds communicate in a different way or similar way. It would create their interest to join NPO activities and also helpful in their future. Education of sustainable development is not only important for children but it is also a desire of everyone without age difference. NPO can play indispensable role in a society to educate local people about sustainability.

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Working Group 2

The Economic Sustainability in the Tea Industry: The Case of Odai Town

和文要約

1. Background information
2. Research objective
3. Main research question
4. Current situation of Odai tea industry
5. Views of respondents
6. The sustainable issue of tea industry
7. SWOT analysis
8. Suggestions
9. Acknowledgements

Written by

(Working Group 2)

Sar Sokhavuth, Keo Morokoth, Orapin Atchariyakarn,
Utumporn Jitsutthiphakorn,* Dao Xuan Son**

Group advisor

Professor Yuzuru Shimada and Assistant Professor Liu Jing

** Group leader * Group sub leader

和文要約

茶産業の経済的持続可能性について：大台町の事例から

大台町の茶農家には長い歴史があり、また生産には高度な技術が使われている。茶産業は家族経営により行われており、大部分の茶農家は生産過程のほとんどを自ら行っている（収穫・加工・出荷）。しかし、大台町の茶産業は持続可能性に関する問題に直面している。その原因として、経済の低迷や、これまでのお茶の飲み方が変化しつつあることがあげられる。消費行動の変化は、発注や売り上げが徐々に減少しているという営業業績に現れている。大台町の茶産業の関係者と茶農家へのインタビューによると、ペットボトル茶飲料の普及はこれまでのお茶の消費量に影響を与えており、大台町のお茶の売り上げの減少につながっている。

同時に、人手不足による賃金増加やその他の資材の値上がりが原因となり、生産コストが増加している。多くの茶農家はより多くの収入を得るため、未耕地を有効利用するために、茶栽培以外に太陽光発電といった事業も始めている。さらに、茶産業は収穫季節に左右されていることから、月ごとの収入は一定してない。このような不安定さにより、後継者を探すことは極めて困難である。大台町の茶農家は、事業の現状維持にとどまっており、発展のために投資をする計画はない。

それにもかかわらず、次に示すように、大台町の茶産業は経済的持続可能性に貢献するような強み **strength** もある：

1. 大台町は質の高い緑茶で有名である。土地が高品質なお茶を育てるのに適しており、茶農家はお茶の品質にこだわり、長年にわたり固定客を維持している。消費者は高品質の茶製品への消費には積極的である。
2. 顧客ネットワークは、安定的な販売チャンネルであり、農協や他の販売先に比べると、収入を安定させる。
3. 大台町の茶産業は高度に機械化されていることから、労働集約的な仕事を減らすことができ、生産性の向上につながる。

さらに、大台町茶産業の経済的持続可能性を確かなものにする機会 **opportunity** として、次のようなことがあげられる：

1. 健康志向のノンアルコール飲料の流行により、お茶の消費の増加すること。
2. 有機栽培のお茶の需要が増加すること。

3. 茶生産には多様化の可能性があるため、お茶産業と観光業を統合する可能性があること。
4. 独創的なマーケティング手法が経済的持続可能性を確かなものにする。

本研究では、大台町の茶産業に対する提案をおこなう。農家は消費者行動の変化に合わせたマーケティング戦略を立て、円安の機会を利用し、持続的な消費を促進する市場を拡大することができる。

The economic sustainability in the Tea Industry: The case of Odai Town

1. Background information

Tea was first introduced in Japan in the early 12th century from China. In 19th century, there was a significant impact to the Japanese tea industry when the mechanization of tea production was applied through the technology of a machine for harvesting tea leaves, which significantly contributed to a labor savings. In addition, sensor technology and computer control have significantly contributed to create more reliable tea quality. Since the 1970s, green tea consumption in Japan has increased dramatically. When canned tea products and PET plastic bottles were launched around 20 years ago, tea became not only the healthy drink, but also matched the fast paced modern life style. Tea leaves are used in various ways, which are not just limited to beverages. Currently, tea leaves are used for making some foods and sweets or for recycling into a range of products and materials such as "Chahaigo Board," which is used in tatami mats—a type of traditional Japanese flooring found in Japanese-style rooms

Japan has mainly produced green tea and it is harvested four times a year (namely: ichibancha, nibancha, sanbancha, and yonbancha). The ichibancha, the first plucking season from April to May, is the most important plucking season in the year because of the high quality of the tea and large quantity of production. Other plucking seasons have experienced lower output and prices. The three main prefectures that produce tea in Japan are Shizuoka, Kagoshima and Mie prefectures. Shizuoka prefecture accounts for 40%, while Kagoshima and Mie prefecture take part in 20% and 10%, respectively. Tea products in Mie prefecture are famous for its high quality and long history of cultivation.

Characteristics of Japanese the tea industry in Odai town

Tea farms were introduced in the 12th century, in the Edo era and have been modernized with mechanization since then. Therefore, Ise tea has had a long history of being cultivated with high technology. Most of the tea farms do every procedure (harvesting, processing, and shipping) as a family-operated business. Local government supports farmers by buying tea-plucking machines and installing anti-frost machines. Furthermore, the local government supports the tea farmer association in order to develop tea products and to organize special activities that promote tea consumption. For financial support, the Japan Financial Corporation is lending money for long-term loans with low interest rates, for example, Super L funds with the first 5 years being interest free.

Mie government is thinking to create its own brand tea name under the name of Ise, in an aim to add value and increase the price for tea grown in Mie prefecture.

Table1: Tea farm area and production in Japan

| 2013 | | |
|---------------------|----------------------------|------|
| Prefecture | Tea Farm area (Hectare) | % |
| Total | 45,400 | 100 |
| 1. Shizuoka | 18,300 | 40.3 |
| 2. Kagoshima | 8,660 | 19.1 |
| 3. Mie | 3,150 | 6.9 |

Source: Ministry of Agriculture, Japan

The temperature of Mie prefecture is suitable for growing tea in a flat area. The first harvesting (1st grade tea leaves) is in April-Mid May and the second harvesting (2nd grade tea leaves) is June-July. The type of tea in Mie prefecture is Kabusecha, which is the sub type of Sencha, the most popular in Mie prefecture. This is due to its strong taste and thick tea leaves that can enable tea to be brewed several times.

Graph 1 shows the tea farm area of Japan in 1890, which was around 4,500 hectares, but it decreased continuously until 1947. Nevertheless, after the World War II tea farm areas increased again to almost the same level before the World War II, which was around 3,000 hectares.

Graph 1: Tea farm area in Japan from 1890-2013

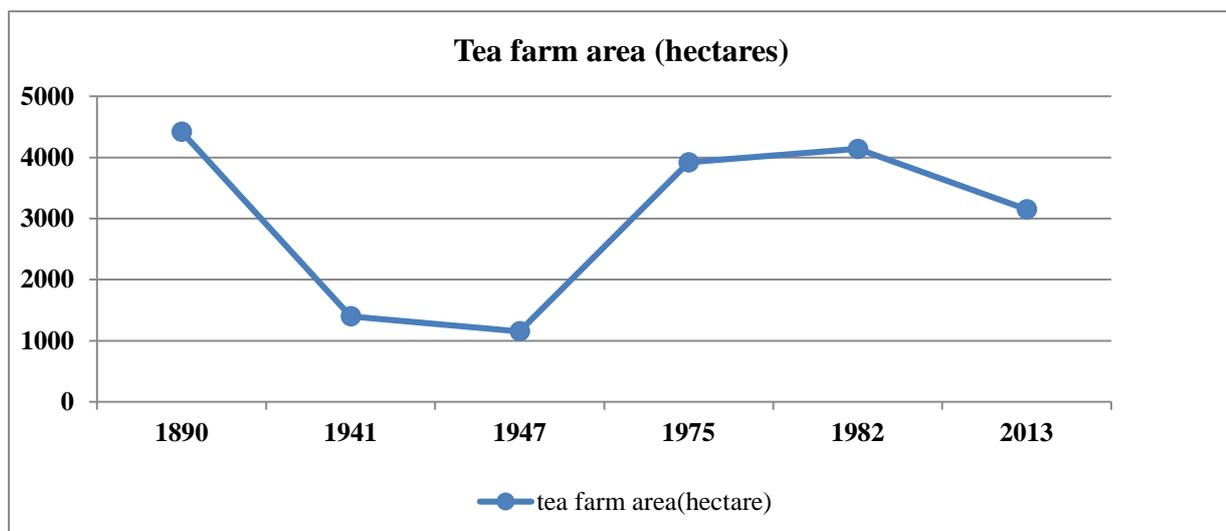
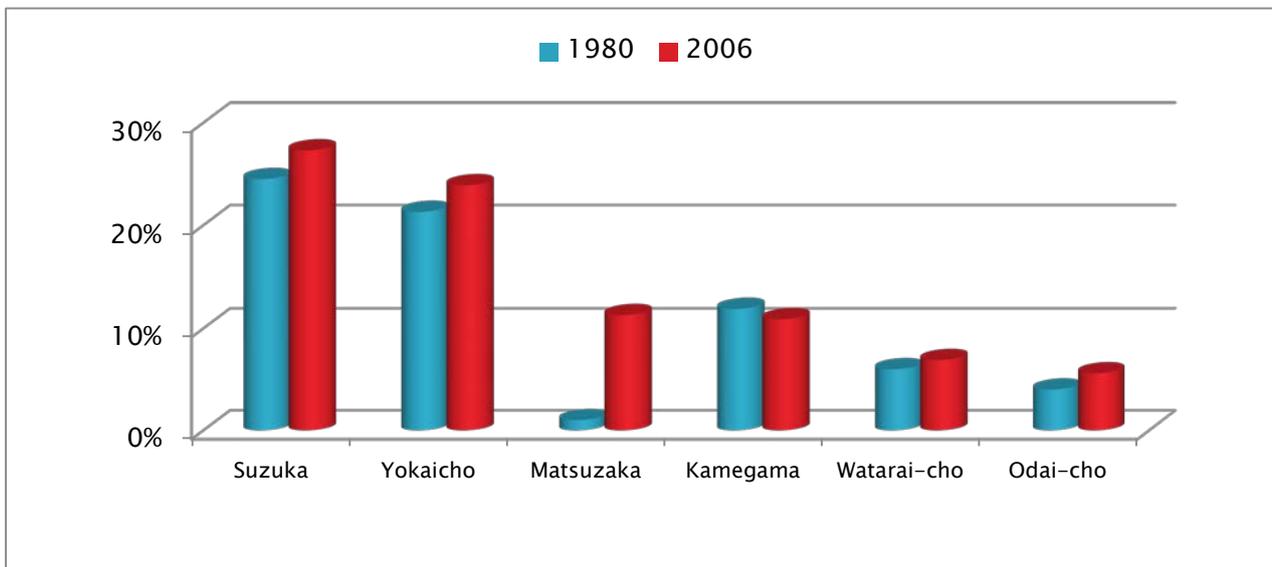


Table 2 shows the share of tea farm area for Odai Town, Mie prefecture, which increased from 4 % in 1980 to 5.6 % in 2006. However, it should be noted that since 2006, the Odai Town area has included the area of Miyagawa Village.

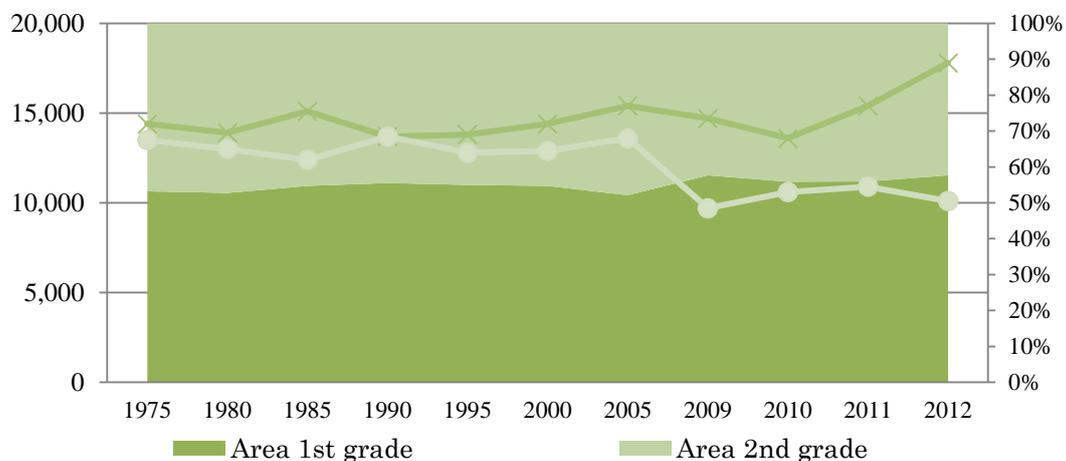
Table 2: Share of tea farm area in Mie prefecture



Source: Ministry of Agriculture, Japan

Graph 2 and Table 3 show that the 1st grade tea leaves have a higher productivity than the 2nd grade. The area of the 1st grade tea leaves decreases but production increases, reflecting that the number of tea leaves per unit of land is higher. Meanwhile, the area of 2nd grade tea leaves decreases but the production has also decreased.

Graph 2: Tea farm area, production in Mie prefecture by grade of tea leaves during 1975-2012



Source: Ministry of Agriculture, Japan

Table 3: Tea farm area, production by grade of tea leaves in Mie prefecture during 1975-2012

| Year | Total | | 1 st grade | | 2 nd grade | |
|-------------|-------|------------|-----------------------|------------|-----------------------|------------|
| | Area | Production | Area | Production | Area | Production |
| 1975 | 3,370 | 32,400 | 3,360 | 14,400 | 2,960 | 13,500 |
| 1980 | 3,530 | 30,000 | 3,520 | 13,900 | 3,150 | 13,000 |
| 1985 | 3,700 | 31,900 | 3,700 | 15,100 | 3,060 | 12,400 |
| 1990 | 3,650 | 29,500 | 3,650 | 13,700 | 2,930 | 13,700 |
| 1995 | 3,390 | 29,300 | 3,370 | 13,800 | 2,760 | 12,800 |
| 2000 | 3,200 | 32,200 | 3,200 | 14,400 | 2,650 | 12,900 |
| 2005 | 2,990 | 36,000 | 2,990 | 15,400 | 2,750 | 13,600 |
| 2009 | 2,970 | 30,200 | 2,970 | 14,700 | 2,180 | 9,700 |
| 2010 | 2,920 | 33,200 | 2,920 | 13,600 | 2,310 | 10,600 |
| 2011 | 2,910 | 34,200 | 2,910 | 15,400 | 2,290 | 10,900 |
| 2012 | 2,900 | 36,100 | 2,900 | 17,800 | 2,130 | 10,100 |

Source: Ministry of Agriculture, Japan

Table 4: Price of tea leaves (Aracha) in 2012

| Prefecture/ Yen per Kg | 1 st grade | %yoy | 2 nd grade | %yoy | 3 rd grade | %yoy |
|---------------------------|-----------------------|-------|-----------------------|-------|-----------------------|------|
| Mie | 1,500 | -0.07 | 239 | 4.0 | 239 | 6.0 |
| Shizuoka | 2,162 | -0.14 | 323 | 3.0 | 323 | 9.0 |
| Kagoshima | 2,410 | -0.03 | 350 | -10.0 | 350 | 3.0 |

Source: Ministry of Agriculture, Japan

The 2nd grade tea, Aracha, has more risk for economic uncertainty and is affected by the popularity of PET bottle drinks. The price has dropped significantly because PET bottle drinks use only low quality tea leaves. This is consistent with the production of 2nd grade Aracha, which increased sharply when PET bottle drinks were introduced in 2005. From then, tea farmers have produced more 2nd grade Aracha for these drinks and the price has gone down.

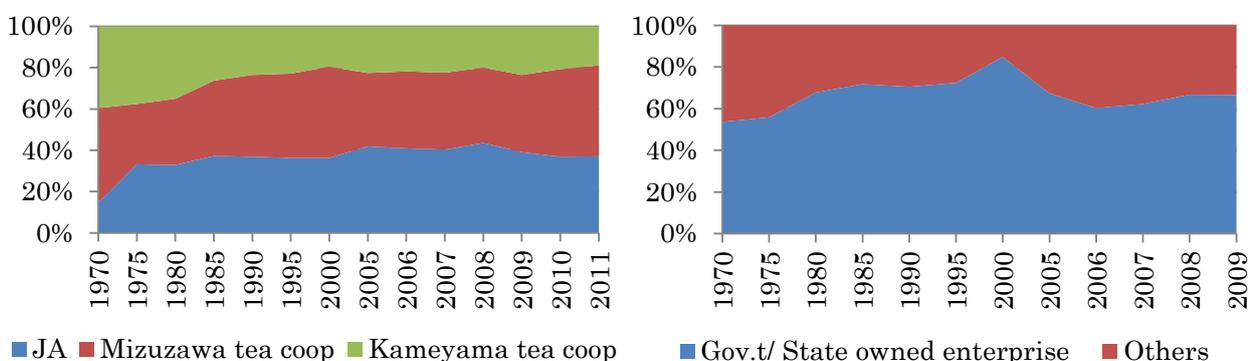
Tea farmers may consider improving the productivity in the 2nd grade Aracha by reducing cost to get higher production. Tea farmers can get more benefit from the price differences between cost and selling prices. Meanwhile, for the 1st grade Aracha, because productivity is sufficient, they should find more market channels outside of only JA and tea cooperatives to expand the power of price negotiations for the farmers.

Table 5 shows that tea farmers in Mie prefecture rely heavily on only three channels for almost 60% of Aracha: JA in Mie prefecture, tea cooperations, and the tea centers in Mizuzawa and Kameyama.. It seems too risky and leaves them with less authority to negotiate; therefore tea farmers may find that dealing directly with tea dealers is more beneficial. By eliminating the middlemen, it could be possible for getting a better selling price. On the other hand, JA may contribute by increasing the buying price for the farmers.

Table 5: The market channel for tea farmers in Mie

| Year (Tons) | JA | | JA total | Mizuzawa | Kameyama | Total |
|----------------|-------|-------|-------------|----------|----------|-------|
| | North | South | | Tea coop | Tea coop | |
| 1970 | 506 | - | 506 | 1,606 | 1,385 | 3,497 |
| 1975 | 806 | 606 | 1,412 | 1,239 | 1,600 | 4,251 |
| 1980 | 801 | 765 | 1,566 | 1,528 | 1,670 | 4,764 |
| 1985 | 941 | 983 | 1,924 | 1,885 | 1,355 | 5,164 |
| 1990 | 893 | 831 | 1,724 | 1,852 | 1,100 | 4,676 |
| 1995 | 1,004 | 745 | 1,749 | 1,970 | 1,100 | 4,819 |
| 2000 | 1,337 | 945 | 2,282 | 2,783 | 1,220 | 6,285 |
| 2005 | 1,263 | 1,024 | 2,287 | 1,945 | 1,232 | 5,464 |
| 2006 | 1,023 | 847 | 1,870 | 1,704 | 993 | 4,567 |
| 2007 | 1,045 | 917 | 1,962 | 1,813 | 1,095 | 4,870 |
| 2008 | 1,022 | 928 | 1,950 | 1,638 | 895 | 4,483 |
| 2009 | 842 | 691 | 1,533 | 1,474 | 923 | 3,930 |
| 2010 | 897 | 734 | 1,631 | 1,872 | 918 | 4,421 |
| 2011 | 1,061 | 754 | 1,815 | 2,158 | 927 | 4,900 |

Source: Ministry of Agriculture, Japan



2. Research objectives

- 2.1 The current situation Tea Industry in Odai town
- 2.2 The challenging of Odai town tea industry and policy implication

3. Main research question

What are the challenges ahead of the tea industry in Odai Town in the prospect of economic sustainability? Economic sustainability in this study is as followings:

- Increasing the volume of tea sales in long run
- Expanding the market share in tea markets
- Reducing the cost through the innovation
- Balance the cost and benefits

3.1 Main hypothesis

The tea industry of Odai Town is facing many challenges for sustainability, due to both an economic slowdown and changes in consumer behavior from traditional tea drinking to PET bottle beverages.

4. Current situation of the tea industry in Odai town

We have found the current situation of tea industry in Odai Town based on interviews as follows.

4.1 Orders

Tea farmers sell their tea product mostly in Japan; therefore they have felt the impact from the economic slowdown and the changes in consumer behavior of drinking tea from a pot to drinking tea from a bottle. Tea leaves used for the pet bottle beverages use lesser quantity and lower quality than tea consumed traditionally from the pot. This affects tea farmers because they are selling less quantity at lower prices. Meanwhile, most of the tea production is the 1st grade, which is the highest quality and price but is not used for bottled beverages. Tea farmers are producing the 2nd and 3rd grade at lower quantities than the first grade. The average price of tea leaves that tea farmers sell to tea centers and dealers can be classified into three grades of tea leaves in different harvesting seasons.

1. Ichibancha - 1st tea leave grade, cultivated during May – the best quality at 2,500 yen per kg.
2. Nibancha - 2nd tea leave grade cultivated during June at 600 yen per kg.
3. Sanbancha- 3rd tea leaves grade cultivated during October at 300 yen per kg.

In addition, there are other reasons beside consumer behavioral changes. Most consumers that are loyal to the tea farmers are seniors that still prefer drinking tea from tea pot rather than from a PET bottle. However, these customers are getting older and consuming less, resulting in a continuous decline in orders.

Nevertheless, tea farmers from our interviews, who export to other countries such as Europe and the US, can maintain their orders. In addition, the demand from foreign countries is increasing and domestic

orders there has only been a small impact from the behavioral changes of consumers because they have loyal customers and long relationships with high-end customers that keep ordering their tea.

4.2 Cost

Most of the tea farmers in Odai are family businesses. The main inputs for tea farming are labor, fertilizer, pesticides, and fuel for machinery, but the prices for these are rising considerably. Generally, farmers mostly use machines to harvest rather than hire laborers for picking tea leaves. Hand picking by part time laborers is only during the 1st season of cultivation (Ichiban cha) and for the competition.

In Odai Town, all the farmers are using machinery to harvest their tea leaves. Some of the main reasons are that tea farmers in Odai have problems with a shortage of labor and a high minimum wage; therefore, they use machinery for harvesting their tea leaves.

Furthermore, because of the rising cost of production and declining demand, most of the tea farmers tend to shift from tea farming to vegetable farming and solar cell energy. Recently, the local government has received many registration forms from tea farmers to do solar cell energy farms because it makes more profit than tea farming. In addition, because of the steep land in that area, it is quite hard for farmers to grow the tea; another reason they decide to shift to solar energy cell farms.

4.3 Investment

To have better and higher productivity, having better techniques and equipment are very crucial for tea farmers. Moreover, although the PET bottle tea is popular, farmers cannot supply the tea to those companies, as is, because the tea that those companies need is a tea powder that needs a specialized machine to produce. Therefore, investing in other specialized machines that can make variety of tea products, such as tea powder and tea bags, would also can help to deal with the declining tea business problems.

Having seen these issues, there are some schemes provided by the local government to promote, as well as give incentives, to the farmers to expand their business.

First, the local government provides financial support to encourage them to continue and expand their businesses. The farmers will receive subsidies as follows:

1. 50,000 yen per hectare for planting new bushes
2. 10,000 yen per hectare for cutting
3. 50,000 yen per hectare for installing fans and poles
4. 25,000 yen per hectare for installing fans

5. 300,000 yen per household for machinery

Second, the local government provides technical support to the farmers. Regarding cultivation techniques, the local government provides experts from the prefectural level to assist the farmers. For packaging design and marketing, the local government will also assist the farmers. Finally, there is a special loan program provided to tea farmers.

However, according to interviews, the farmers tend to hesitate to invest more in the tea business due to several reasons. First, there is the problem of an aging population. Second, lacking in a reliable workforce, they refrain from expanding their businesses. As the majority of the farmers are family businesses, hiring workers is also very expensive and therefore more investment is not highly valued. Third, it is hard to find the successors to continue their businesses since the younger generation tends to move to work in urban areas. Fourth, due to lower market demand for tea, farmers are reluctant to invest more in their businesses. Finally, some farmers are quitting and shifting from tea farming to other businesses that have more demand and profit such as mushroom farming and solar panels.

4.4 Profit

Japan tea is mostly consumed in domestic markets. Therefore the domestic consumption directly affects tea farmer profits. Green tea consumption in Japan decreased from 100,000 tons in 1970 to 90,000 tons in 2010, meanwhile black tea has slowly increased and in 2010 it accounted for nearly 17,500 tons. The market for tea has been highly competitive with coffee. Coffee consumption in Japan increased 1.2% from 2000 to 2010 (FAO Report).

In Mie prefecture, the profits for tea farmers are not stable, particularly for farmers who mainly sell their product to JA.

The profit of farmers in Odai Town is uncertain if farmers depend on only one market channel. Some farmers can maintain profits based on loyal customers and increase organic tea for export. While other farmers choose to diversify their products or cooperate with each other to expand the market.

4.5 Overall business performance

Regarding orders and profits, both of them have been gradually decreasing. Based on the interviews with Odai tea industry representatives and tea farmers, the introduction of PET bottle beverages has had a negative impact on the amount tea consumed traditionally, (tea pot consumption), reflecting a decrease in Odai tea sales.

Meanwhile, the cost of production has increased due to an increase in minimum wage from a labor shortage and other inputs, for example fertilizer. As a result, there are few successors to the family

businesses. Many tea farmers also shifted to do other business, especially in the solar cell business, to earn more profit and also to utilize uncultivated land. In addition, the tea business is dependent on the season of the picking period. Therefore, the seasonal nature of the business means that monthly income is not guaranteed. With such uncertainty successors are hard to find. Typically, Odai tea farmers are just maintaining their tea businesses and have no plans to invest more.

5. How they adjust or solve problems - view of respondents

5.1 Tea farmers

According to the interviews with the farmers, awareness of traditional tea drinking should be considered in order to move ahead with the Odai tea business. Due to the gradual changes in tea drinking habits, the farmers have suggested that children become accustomed to traditional (from the pot) tea drinking after their meals. Typically, most schools provide milk for young students to drink after their lunch meal. It is believed that this habit will form and the children will drink milk in their daily lives when they grow up to be adults. Therefore, the situation of establishing the habit of tea drinking by providing pots of tea for young students to drink after their school meal should be advantageous to the Odai tea business.

With such suggestions for increasing demand of traditional tea drinking, the problem of lacking successors for the Odai tea industry should be a concern. The opportunity to sell out tea leaves and earn more income will be rise if there is an increasing demand for traditional tea pot drinking. This situation can eventually attract larger numbers of laborers, especially those prospective successors for the Odai tea business.

By playing up the health benefits of drinking tea, advertisements posted in hospitals, schools, public spaces or even private companies to support drinking traditional tea, should be done to create awareness for every age of group. It is reasonable that the demand for traditional tea pot drinking could be substantially increased by groups of health conscious people.

There are some farmers who are exporting Odai tea leaves to international countries. Mr. Hayashi is one example of a tea exporter. He succeeded his business from his father and currently exports tea 10-15% of his total product to Germany, Belgium and America. He is also planting organic tea leaves because he is aware of the demand for pesticide free tea leaves among health conscious people. However, organic tea takes more time and effort compared to original tea leaves.

Another exporter is Mr. Onishi, who has more than 20 years experiences in the tea business and owns a tea farm in Vietnam. His farms are currently exporting to various countries, especially Taiwan and

Pakistan. He has pointed out that the Japanese tea leaves has a large potential for exporting to Pakistan in the next 10 years because of a continuous population growth and high demand for traditional tea.

In conclusion, the increase in demand of traditional tea consumption is somewhat important for Odai tea farmers. With increasing demand, the situation of the Odai tea business could attract labor and successors, increasing the sales volume and even expanding into new markets in the near future.

5.2 Tea shops

5.2.1 The tea shop at the Michi-no-Eki (Roadside Station)

Mr. Hamai, explained that the roadside station had been operated by the government for 15 years. The shop's main activities are to sell goods and serve food. Vegetables are the most popular products of this shop. Tea sales contribute only 6 % of the total sales. There are ten tea suppliers from Odai Town and another five tea suppliers from nearby cities. The shop charges 15% of the sale price of the products in the station. Approximately 70 % of the customers are local. The total sale of tea is has been decreasing around 10% every year starting from 2010. However, this is not for only tea, but the other products due to depopulation in the Odai area. Mr. Hamai also indicated that total sales are decreasing 2% per year because of the new highway, tax increases and the economic slowdown. He also pointed that tea sweets were introduced in 2013 and have become popular. The most popular of the products made from green tea is soft-served green tea ice cream. He also emphasized that the main concern for the shop is a lack of vegetable supply, meanwhile, there is more than enough of a tea supply for this station. They try to promote the tea by making tea for the customers who come to eat food at the station.

5.2.2 Shop owners

According to interviews with the shop owners, the economic slowdown has had a severe impact on their tea business. Tea used to be more popular but recently due to the economic slowdown and behavior changes of the customers as mentioned earlier, demand for tea products is decreasing year by year. One of tea shop owners stated that besides tea farming, a mushroom plantation would be the aspect of his business because it would provide more profits than just tea alone.

The shop owners indicated that there are three main market channels for their tea industry: tea shops, dealers, and the loyal customer network. They emphasized that most the tea products are sold to Japan Agriculture (JA) and directly to dealers.

The price of organic tea is higher than general tea because of the high demand and high cost of organic fertilizer; organic tea takes more time and effort. However, one shop owner indicated that even though the export amounts are small and there is little demand for organic tea in Japan, he still continues

his business because he wants, not only Japanese people, but also the other countries to drink good quality organic tea.

Tea shop owners also mentioned that the demand for tea in Japan is limited even though the economy is growing. They also commented on the need for some mechanization to improve the current situation of the tea industry in Odai Town. By introducing new machines, innovation to create new products would potentially sell the tea products to market as something other than just a beverage; tea leaves could also use for cooking tempura, tea sweets, cosmetic products and others.

5.3 Government

In interviews with the local government officials, they mentioned their concerns and also shared some views regarding the possible solutions to deal with the decrease of the tea industry. First, with the current subsidy scheme that the local government is supporting, the tea farmers are helped with both financial and technical support. The local government will continue to support by providing advice and marketing. Moreover, the local government is now considering the subsidy in the case of how to help farmers in the case of disaster. Second, efficient use of machines and land gathering are key factors in solving the problem of the declining tea industry. Being able to utilize machines will enable the farmer to increase the productivity and quality of the tea that the market needs. Third, price decrease is mainly caused by the oversupply of tea products in the market. Therefore, farmers should control the quantity of tea so that demand and supply will be balanced and the price will be maintained. Forth, each stakeholder, such as farmers, cooperatives, and the local government should cooperate. Finally, from the perspective of a chamber of commerce official, establishing a brand name for the tea would add more value and increase the awareness of the public about Odai tea. Kyoto's tea named Uji Matcha is very famous and there is a high demand for this tea.

5.4 Chamber of Commerce:

Tea farmers in Odai Town are lack of cooperation in production process. Hence, the cost of product is hardly reduced when compared with other prefectures. Therefore the strong leadership which can enhance the cooperation between tea farmers is vital for economic sustainability in the Odai tea industry. Furthermore, in the context of huge changes in customer behavior and the independent farmers business, the local government should support the promotional activities for tea products and conduct market research for expanding foreign exports.

6. The sustainable issues in tea industry

- Economic issues

6.1. Uneven value of distribution

The value chain of the tea sector is highest for the blending, packing and marketing. Therefore, the tea farmer who is the first stage of production makes less profit compared with the blending and packaging companies.

6.2. Falling prices

Outside of the last 20 years, it had been a long time, since the price of tea price has been falling and this is mainly due to the increase in tea supply. On the other hand, rising costs of production, which include wages, fertilizer, and gas. Meanwhile the retailer needs to maintain the retail price so it is the producer that receives a lower income. Nevertheless, the retail price of tea has increased since 2006 (FAO) and the increasing of demand in China helps to push the world prices of tea to increase, which is good for tea producers.

6.3. Limited market channels for small farmers

Most of the small farmers are price takers. After cultivation they need to sell to middlemen as quickly as possible to avoid from losing the quality and to keep the tea fresh in order to get the highest price as possible. Therefore there are limited market channels for them. In addition, there is a lack of transportation and only one factory to process the tea.

6.4. Lack of market information

Small tea farmers cannot access market information like big farmers and sometimes do not know the quantity of demand, resulting in some of their products to be oversupplied which results in a decrease in the price. Small groups of farmers could help to share the information of the demand and supply, and also could include technical know-how for planting to help each other. The community of small tea farmers is playing the important role to sustain in tea business.

6.5. R&D

Research and development of tea species is also important to resist uncertain weather conditions. One of the problems of the quality and the quantity of tea leaves is that they rely heavily on the weather conditions. In addition, R&D activities can improve the quality and add new species that are more resistant to weeds. This could help tea farmers get higher prices for tea leaves and also reduce their cost of fertilizer at the same time. This is not unlike successful cases, like the corn of Thailand, where they developed a breed to improve the quality of corn. Recently, Thailand became third in the world for exporting corn because Thai sweet corn can compete with other countries, both in the quality and price.

7. SWOT analysis for the tea industry in Odai Town.

1. Strengths

Strength 1: Odai Town has a good reputation of high quality green tea and it has the appropriate land for growing high quality tea.

Strength 2: The labor force is highly efficient with a high level of mechanization used in production.

Strength 3: There is a loyal customer network that consumes high quality tea products.

How do these strengths contribute for economic sustainability in the tea industry?

These strengths have a valuable contribution for economic sustainability in the tea industry because it expresses the commitment of the farmers to maintain the high quality of tea they provide to their customers. When farmers focus on the quality of their product they can maintain a loyal customer network. The customers readily pay money for high quality tea products. This customer network is quite a reliable distribution channel, which can contribute to stabilize profits compared to that which is sold to JA or other distribution channels. Moreover, the tea industry in Odai Town uses a high level of mechanization in production, which can be reduce labor intensive work and enhance the productivity.

2. Weaknesses

Weakness 1: High production costs lead to high prices in the international market.

Weakness 2: The farmers lack cooperation in business.

Weakness 3: Lack of market information for export

Weakness 4: Tea products in Odai Town do not have a unique brand to compete with other tea brands in the market

How do these weaknesses affect to economic sustainability in the tea industry?

One way to ensure the economic sustainability in the tea industry in Odai Town is to find export markets. When selling on the international market, the producers will compete with others by price. However the price of Odai Tea is high when compared with average international tea prices. The main reason is because of the high production cost. The main cost in tea production is labor costs. Therefore how to competitive with developing countries that have considerably cheaper labor becomes a question for the export ability of the tea industry in Odai Town. Furthermore, other costs (fixed costs, fuel costs) are hardly reduced if the farmers operate independently. In addition, the information about export markets is still limited for farmers who want to export their products. When compared to Odai tea products, other tea products planted in other areas in Japan have unique brands. The lack of a brand narrows the potential market for sales in Japan and in international markets.

3. Opportunities

Opportunity 1: The trend to concentrate on healthy nonalcoholic beverages includes tea

Opportunity 2: There is a growing demand for organic tea in Japan

Opportunity 3: There is a potential to diversify in tea production and to integrate between tea and tourism in Odai Town.

Opportunity 4: Creative marketing could play a role to ensure economic sustainability. (The case of Starbucks)

How are these opportunities can ensure the economic sustainable in Tea Industry?

During the fieldwork we find the ability to diversify in tea production in Odai Town. The farmers have become very flexible when they combine mushroom farming with the tea, making them more profitable. In addition, products from tea leaves are expanding from traditional tea to tea sweets.

4. Threats

Threat 1: The trends in which customers shift from tea to coffee when income increases, and change from traditional tea to ready to drink tea (PET bottle).

Threat 2: High competition from developing countries (Sri Lanka, China, India).

Threat 3: Depopulation, which leads to lack of labor.

How can these threats affect the economic sustainability in the tea Industry?

In modern life, young customers are more likely to choose tea in a PET bottle. In addition, while income increases, consumers who are not loyal tea drinkers are likely to choose coffee. Furthermore, the tea industry in Odai Town is having trouble lowering prices while the cost of production is too high and depopulation pressures farmers to raise the cost of labor.

The matrix of SWOT:

| | |
|---|---|
| Strengths <ul style="list-style-type: none"> - High quality of green tea with a strong taste and has a long history. - Network of loyal customer support - Land that is appropriate for growing high quality tea. - Labor is highly efficient - Production is highly mechanized | Opportunities <ul style="list-style-type: none"> - Healthy food trend draws attention to organic drinks, increasing demand for organic products, including tea, especially in Europe - Possibility for product diversification - Have a beautiful natural places for tourism - Introduction of new interesting brands for younger generations. |
| Weakness <ul style="list-style-type: none"> - No unique brand - High production costs (wages, fertilizer, fuel, etc.) - High price point compared to products from developing countries -Lack of market information -Limited distribution channel - Low level of cooperation between tea farmers | Threats <ul style="list-style-type: none"> - Tea has a seasonal price - Depopulation - Natural disaster - Economic slowdown - High competitiveness in domestic market/ foreign market especially from developing countries like China, India, Sri Lanka - Consumer behavioral change |

Source: Authors

8. Suggestions

Based on the interviews, we propose some measures for economic sustainability in the tea industry

Promote the sustainable consumption

The tea farmers should have a market strategy to meet the change in consumer behavior. For example, women tend to consume goods more than men. Meanwhile, men are spending more on sports, transport and capital asset. Therefore, it could be a good opportunity to create packaging or promotions of tea that meet with the tastes of women rather than men. In addition, there was a previous study (OECD, 2008) that found that women were more likely to be sustainable consumers and tend to buy organic food compared with that of men.

Market opportunity

The Odai tea industry still has an opportunity, especially the organic tea, since the healthy food trends are drawing attention to organic beverages. Organic tea has become a trend in European countries such as Denmark and Germany. In addition, the Middle Eastern countries are also a potential market for Odai tea. JA Kagoshima prefecture has obtained the Halal certification in order to expand the market of tea in the Middle Eastern countries. This could also be effective to market tea in Indonesia and Malaysia. Those countries have a high consumption of tea. Moreover, Asian countries are also one of the market opportunities for Odai tea, for example Thailand. Thailand has a lot of demand for Japanese tea. The table below shows that Japan ranks as the third largest import market of Thailand for tea, both of tea powder and tea leaf, after China and Indonesia. In addition, the data for Ichi-Tan's (top Japanese tea brand of Thailand) annual report has forecasted the domestic demand for Japanese green tea to increase due to healthy food and beverages becoming a trend. People in Thailand tend to drink tea more than other beverages like soft drinks.

Table 6: The ranking import market of Thailand for tea since 2012-present

| IMPORTS OF THAILAND | | | | | | | | | |
|--|-----------|-------------|-------|-------------|-------|----------------|-------|----------------|-------|
| HS. : 0902 (KG) Tea, whether or not flavoured. | | | | | | | | | |
| NO. | COUNTRY | 2012 | | 2013 | | 2013(Jan.Sep.) | | 2014(Jan.Sep.) | |
| | | QUANTITY | VALUE | QUANTITY | VALUE | QUANTITY | VALUE | QUANTITY | VALUE |
| | WORLD | 7,741,983.0 | 11.5 | 4,721,520.0 | 12.1 | 3,301,055.0 | 8.3 | 2,900,758.0 | 9.8 |
| 1 | CHINA | 1,239,269.0 | 1.3 | 890,242.0 | 2.0 | 604,820.0 | 1.4 | 638,480.0 | 3.1 |
| 2 | INDONESIA | 340,357.0 | 1.2 | 587,927.0 | 2.4 | 360,596.0 | 1.3 | 405,425.0 | 1.9 |
| 3 | JAPAN | 104,345.0 | 1.6 | 111,922.0 | 1.6 | 83,332.0 | 1.1 | 101,095.0 | 1.5 |
| 4 | SRI LANKA | 2,368,280.0 | 1.7 | 133,763.0 | 1.4 | 89,798.0 | 1.0 | 73,329.0 | 0.9 |
| 5 | VIETNAM | 1,933,347.0 | 0.9 | 1,461,872.0 | 0.7 | 1,044,830.0 | 0.6 | 1,177,795.0 | 0.6 |
| 6 | POLAND | 35,420.0 | 0.6 | 27,274.0 | 0.4 | 15,896.0 | 0.2 | 22,405.0 | 0.4 |
| 7 | MYANMAR | 1,445,838.0 | 1.3 | 1,189,994.0 | 1.0 | 852,903.0 | 0.7 | 359,632.0 | 0.3 |
| 8 | TAIWAN | 88,460.0 | 0.2 | 112,372.0 | 0.3 | 96,618.0 | 0.2 | 63,258.0 | 0.2 |
| 9 | SINGAPORE | 5,759.0 | 0.4 | 11,631.0 | 0.7 | 7,386.0 | 0.5 | 3,192.0 | 0.2 |
| 10 | U.S.A. | 16,970.0 | 0.2 | 22,842.0 | 0.4 | 16,442.0 | 0.3 | 9,504.0 | 0.2 |

Source: Ministry of Commerce, Thailand

Nevertheless, Thailand has quota limits for imported tea in order to protect the tea business in Thailand, however, there is still a high demand for Japanese tea. Singha Beer, the biggest beverage company in Thailand, has a joint venture with Maruzen Company for the top three green tea companies in Japan to produce matcha green tea bags for exporting to China and Taiwan. It will also supply green tea powder to the Thai food industry.

Successful cases

Regarding opportunities for the Odai tea industry, this part will raise some successful cases that may apply to the Odai tea industry.

Diversification at Tata Tea

One of the good options for Odai tea farmers is diversity their tea business by growing other agricultural products such as mushrooms in order to earn more income and help sustain the tea business. For example, in Sri Lanka, Tata Tea, the tea blending company also has focused on expanding market share in consumer marketing and improving productivity. The company also decided to diversify into export agriculture crops and other vegetables. This helped Tata Tea to utilize uncultivated land and earn more income. Meanwhile, Tata Tea still mainly focuses on the tea business.

R&D - Thailand case of sweet corn

Thailand developed a breed of sweet corn since 1960 by bringing the first breed from the USA and then developing their own breed through research in cooperation with business enterprise. In 1992 they achieved a good quality of sweet corn. The Thai sweet corn business has been growing continuously since then. Thailand ranked as the number one sweet corn exporter of the world since 2011. The key reason for achievement was cooperation among stakeholders: farmers, raw material suppliers, industry, and the breeding development company came together to make the “lowest cost but highest quality.”

Tourism

The Odai area has the potential to be a tourism place due to the many beautiful places, such as Miyagawa River. Therefore Odai could link tea farms with tourism or the Odai local government could promote and advertise by using a promotional film. When it becomes known as a tourism area they could have many tourists. Currently most tourists only know Kyoto as a famous for Japanese green tea but actually Kyoto also gets tea from Odai. Mie is the third largest prefecture that grows tea, therefore the local government should take more effort to advertise. As a result, it could help to boost the local industry, Odai tea.

Another successful case

Effective collaboration and support between relevant parties, such as transferring information (new technology, financial subsidy, trade fair) between the central government, the local government and the tea farmers should be enhanced.

Odai tea farmers should initiate a group of farmers to have regular meetings to exchange idea and experience like in Shizuoka prefecture

A creative marketing strategy could help the tea industry in Odai Town to become economically sustainable. There is a lesson from the Starbucks model. Starbucks is a famous global brand of coffee. The important reasons for its success are the creative marketing and unique strategy to build the brand. According to Howard Schultz, the CEO of Starbucks, “We’re not selling a cup of coffee, we are providing an experience.” With this quote, he does not just concentrate on coffee, but he make the Starbucks store place where people go to enjoy coffee. With his vision, Schultz transformed the coffee store into a “third place” – a place between home and office, where people can enjoy the comfortable environment with Starbucks coffee. With these things Starbucks made its unique culture and created the international expansion. Starbucks still has a successful business in coffee exporting countries like Brazil and Vietnam because of their strategy. Therefore, even with an unfavorable supply and demand situation and high price of their products, Starbucks has success through a good marketing strategy.

The suggestions for the tea industry in Odai Town are to build a brand associated with Japanese culture. Yong Zhang, (1996) studied the effect of the country of origin related to the choice of customers. This study demonstrated that products made in Japan are more attractive to Chinese when compared with products from the United States or South Korea. This research revealed an important suggestion in that consumers in emerging markets and less developed countries are likely to rely on the country of origin to make the purchasing decisions. In Southeast Asian countries, the culture and quality of product made in Japan have been admired. Therefore, activities to promote the Japanese culture in these countries should be associated with the traditional tea culture, like tea ceremony, along with tea products from Odai. The farmers in Odai Town should cooperate to establish a tea brand and actively take part in cultural activities to promote in foreign countries.

Another suggestion would be to find effective marketing channels for the tea business through an international fieldwork experience. The Japanese government has planned to increase the number of international students coming to the country with “The 300,000 international Students Plan.” These students are from all over the world and when they take part in fieldwork about the tea industry, most likely they will buy tea products. Furthermore, they can buy tea products as gifts when they go back to their countries. It will become a very good channel of marketing for tea products in Odai Town. Therefore,

the local government should actively cooperate with universities that have international students and provide fieldwork experiences about the tea industry.

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Presentation

Working Group 3

Several Issues of Abandoned Forests in Odai Town

和文要約

1. Introduction
2. Definition of Abandoned Forests
3. Types of Abandoned Forests
4. Measures and Challenges
5. Background Issues of Forestry
6. Conclusion and Recommendation

Acknowledgment

Reference

Written by

(Working Group 3)

Hiroshi Masuda** Jinta Ueno* Wang Ding Ka Gaiei Rebecca Ferderer

Group advisor

Professor Itsuko Fujimura

***Group Leader*Sub Leader*

和文要約

本研究は2014年国内実地研修により、三重県大台町で行われたフィールド・ワークの成果をまとめたものである。本研究では、大台町における市民社会・市民活動を研究の対象領域としている。具体的な研究テーマとしては、大台町における森林管理という問題を放置林対策という側面から扱うことで、近年注目されている「放置林」という問題がいかなる実態を持つものかということを検討している。

今日から遡ること10年前である2004年、大台町（旧宮川村地域）は台風21号による豪雨で生じた大規模土砂災害を経験し、この災害によって大台町は甚大な被害を被った。この経験が大台町にもたらした衝撃は大きく、被災から10年目である今年も町による慰霊式が行われ、多くの町民の方々が式に参列し、過去の経験を未来へと引き継いでいくことが確認された。被災以後の大台町において、こうした土砂災害への対策として森林をいかに管理していくのかということが、重要な問題として認識されている。その問題意識は、町づくりの基本施策として大台町が作成している「総合基本計画」の中にも盛り込まれており、まさに大台町全体として取り組まれるべき課題として位置付けられている。

一方で、こうした森林管理が問題として取り上げられているのは大台町に限られたケースではない。むしろ、他の多くの自治体や市民団体においても森林の管理問題は認識されており、それに対する対策が現実にも求められているのが今日の状況である。特に森林の管理問題では、大台町のような土砂災害の経験などから、防災対策としての側面が強調されるようになっており、管理がなされず放置された「放置林」ないし「放棄林」というキーワードがにわかに注目されるようになってきている。

しかし、森林管理問題で放置林という言葉が注目を集めるようになる一方で、この「放置林」という言葉が具体的に何を指すのかは必ずしも明らかにされていない。そこではあくまで、森林が手を入れられておらず放置されているという意味に留まる印象を受ける。そこで本研究では、この「放置林」が実際にどのような実態を持つものであり、何が具体的に問題となってくるのかを、大台町という地域でのフィールド・ワークを通じて明らかにしようと試みた。

本研究では、関係機関に対する現地でのインタビューや、他の自治体やNPO法人等が作成する資料などをもとに以上の問題に取り組んだ。具体的には、森林が放置林へと至るプロセスを3つの類型に分けて説明し、それぞれに対する対処を検討した。また最後に、放置林という問題の背景にある林業の衰退という問題にも注目し、それに対する対策の提案も含めて、包括的な提案を行った。

本研究が完成に至るまでには、これまでに多くの方々のご協力を頂いた。特に、本研究のインタビューにお応え頂いた、大台町役場の谷昌樹様、宮川森林組合の岡本宏之様、フォレスト・ファイターズの井澤俊彦様、そして、みやがわ森選組の岡本雄大様にはあらためてお礼を申し上げます。

たい。また、大台町でのフィールド・ワークのために、各関係機関との調整をして頂いた大台町役場の西出覚様、そして市民活動グループのインタビューに際して様々なサポートしていただいた西瀬雅之様にも非常に多くのご協力を頂いたことにも、感謝を忘れることはできない。

また何より、指導教官を務めて下さった藤村逸子教授には、本研究の初期段階から非常に多くの助言を頂き、熱心なご指導をたまわった。また、フィールド・ワークで当グループの通訳を務めていただいた平石順久様にも、通訳によるサポートだけでなく、調査の内容面に関わる多くの助言を頂いた。最後に、DFWに関わる多くの実際の業務に携わり、ご多忙の中にあるにも関わらず当グループの研究に対して様々な助言をしてくださった劉靖先生にも、本研究は多くを負っている。ご教示を頂いたすべての方々にあらためて感謝申し上げたい。

This report explores the following:

What are the actual conditions of abandoned forests? This report makes clear what the actual conditions of abandoned forests are, identifies the blind spot in the existing arguments and supplements them.

1. Introduction

These days, due to an increase in forest-related natural disasters, such as landslides, “abandoned forests” have been recognized as a major social problem. However, the definition of what constitutes an “abandoned forest” is not very clear in present arguments. This report explores the meaning of abandoned forests through our fieldwork in Odai Town. Finally, this report identifies missing points within the existing arguments and presents how abandoned forest should be treated.

2. Definition of Abandoned Forests

How is abandoned forest generally defined? For example, according to “Kotobanku”, an online encyclopedia, an abandoned forest is “a forest which has neither been thinned nor weeded after trees were planted, or a forest which has not been replanted after felling”¹. The handbook published by the NPO Uyoro Environment Corporation defines an abandoned forest as an “artificial forest which has difficulty in producing valuable wood and which will take a long time to recover a natural forest state”².

These definitions are different according to the view and purpose of different abandoned forests. However, they are common in that they focus on the maintenance (or lack thereof) of forests. In other words, these definitions set criteria according to whether forests are maintained properly or not. On the other hand, when it comes to today’s abandoned forests, the context of the arguments is related mainly to natural disasters, especially landslides, and the role of forests in disaster prevention. Thus, from the viewpoint of disaster prevention, this approach regards abandoned forests as forests that have problems in disaster prevention. This report takes this approach, because it aims to understand abandoned forests from the perspective of disaster prevention. To measure the disaster risk of forests is difficult, but generally, the degree of maintenance like thinning, weeding, etc., could be a criteria to measure it.

However, when we define abandoned forests in terms of disaster prevention such criteria are not enough. In the actual situation of managing forests, the resources of stakeholders (owners, forest association, etc.) are limited. So, if all unmanaged forests were labeled as abandoned, feasibility of any measures taken would be very low. For this reason, a practicable definition is required in terms of reducing and preventing abandoned forests. Based on such ideas, the definition of abandoned forest is considered as “unmanaged forests that are located on a risky site for natural disasters, and have the possibility to affect people’s lives”. In this report, the definition of abandoned forests is used, unless otherwise mentioned.

¹ Kotobanku “コトバンク” seen on 18th November 2014

<https://kotobank.jp/word/%E6%94%BE%E7%BD%AE%E6%9E%97-885565>

² See NPO Uyoro Environmental Corporation “Manual for Maintaining Abandoned Artificial Forests” 2011, page 5 “NPO 法人ウヨロ環境法人「放置人工森林整備マニュアル」2011年、5項”

3. Types of Abandoned Forests

With the above definition of abandoned forests, they are examined more detail. It is apparent that there are several types of abandoned forests, according to the reasons why they became abandoned. Measures taken also differ in accordance with the different types of abandoned forests. Those patterns are described and considered below.

3.1. Abandoned forests whose owners are unknown

This type of abandoned forest can be further divide into two groups:

1. Forests whose ownership became complicated because of inheritance
2. Forests whose owner cannot be identified after the forest was transferred through sale because the new ownership was not registered

3.2. Abandoned forests which cannot be managed because of unknown boundaries

This type of abandoned forest has boundaries with other forests that cannot be recognized by referring to the official register or even by the present owner. That is why a proper management plan cannot be created, leaving the forest unmanaged and at the risk of possibly becoming abandoned.

3.3. Abandoned forests which cannot be managed because of unprofitability

Regarding this type of forest, its ownership and boundaries are clear. However, they're not managed because they are unprofitable.

4. Measurements and Challenges

4.1. Abandoned forests whose owners or ownerships are unknown

When forest owners are unidentified, nothing can be done except to refer to the register. However, new forest owners may be identified through the newly introduced "Forest Owner Notification System", implemented under the revised forest law in 2012.

If ownership has been complicated because of inheritance, owners should be urged to transfer the ownership to at least one inheritor or select a representative who is in charge of managing the forest. However, these procedures are very complicated and troublesome. Therefore, what should be done first is to prevent the occurrence of these kinds of forests by promoting awareness among forest owners' and the local people through public relations.

4.2. Abandoned forests which cannot be managed because of unknown boundaries

For demarcation, boundaries need to be determined together with the owners. However, it's very difficult to do it when their opinions differ or they don't have a clear idea about boundaries.

4.3. Abandoned forests which cannot be managed because of unprofitability

Decreased costs and increased profitability may be reached by improving work efficiency through the consolidation of management. However, securing profitability itself is quite difficult. Subsidies may be utilized for disaster prevention; however, for forests which cannot receive such subsidies, cooperation with volunteer groups may be necessary.

4.4. Summary

Any type of abandoned forest mentioned above has certain difficulties. Once abandoned forest type (1) or (2) occur, it's very difficult to solve. That's why prevention of these occurrences beforehand or coping with those forests before the situation becomes more serious. Presently, there are not very many abandoned forests of type (1) and (2), but there is every possibility of increasing unless something is done. Therefore, urgent measures are needed.

5. Background issues of forestry

5.1. Decline of forestry

As the three patterns of the process in which forests become abandoned were described above, the discussion will turn to more fundamental issues about abandoned forests. Attention needs to be paid to the declining business of forestry as a background of the problem.

Since the liberalization of international trade and increased competition with imported timber, the price of timber has fallen, affecting people in Odai Town and many other areas in Japan, the Japanese forestry is at disadvantage in price competition because other timber producing countries like Canada or the United States can mass-produce timber more cheaply. In addition, insect damage is another reason for the decline in timber price. The drop in price of timber decreases income from forestry and it is the main why forestry is no longer a profitable industry.

After the WW II, Japan promoted afforestation and forests had high economic value. However, because it's difficult to make profit from forestry today, less and less people are becoming interested in forests, resulting in more and more forests becoming "abandoned" without any maintenance.

5.2. Contemporary issues of forestry

This section describes certain contemporary issues of the forestry. The first one is damage from deer. Deer eat planted seedlings and they tear off bark. These behaviors disturb the growth of trees, especially during the growth of natural forests. Recently, the number of deer is increasing in Odai Town and it becomes a big problem for forestry.

The second issue is about wood chips used for biomass power generation. Biomass power generation is considered as an alternative source of energy. Three plants have been constructed in or near Odai Town and

the demand for wood is expected to increase. However, the price of wood chips for biomass power generation is not very high. The biggest concern is whether or not reforestation will be conducted after large-scale felling for wood chips. This is because profit from wood chips may not be enough to reforest. Without reforestation, the possibility of natural disaster would be high even compared to that of abandoned forests.

A more fundamental solution for abandoned forests is difficult unless forestry itself is revived. Therefore, for the long run, measures for solving the problem of abandoned forests include recovering the forestry industry.

6. Conclusion and Recommendation

6.1. Conclusion

6.1.1. The actual conditions of abandoned forests seen in Odai Town

Abandoned forests were classified into three patterns and the related problem were described. It seems that the biggest problem is the cost for coping with those problems. Resources that the local government and organizations can use for abandoned forests are very limited. The forest association cannot help by giving priority to certain forests, considering the cost. However, it is fortunate that there are not so many abandoned forests in Odai Town at the present.

It is expected that the cases like abandoned forest type (1) or (2) will increase nationally. Thus, it is better to deal with the problem before it expands in Odai Town.

6.1.2 Problems of general arguments about abandoned forests

In general, arguments about abandoned forests and the problem of abandoned forests are not well organized. It seems that the only idea officials have regarding abandoned forests is that they are a problem because they are related to natural disasters. However, the issues about abandoned forests need to be structured well when thinking about solutions.

After investigating the actual conditions of abandoned forests through the case study of Odai Town and categorizing the different types of abandoned forests, it was found that there are three types of abandoned forests in terms of source. One of the problems is that abandoned forests are not linked with land boundary issues. Land boundary issues can be an issue of abandoned forests depending on location. Therefore, consideration needs to be given to abandoned forests in relation to land ownership issues³ when measures are contemplated.

6.2 Recommendations

This section offers recommendations for some ideas that may contribute not only to solving the issue of abandoned forests, but also to promoting forestry in Odai Town. Although the ideas may have been already

³ Land ownership issues are discussed in detail in “Manual for Maintaining Abandoned Artificial Forests”, 2011

discussed, they may be difficult to put into practice and require certain consideration

6.2.1. Information Sharing

The first thing to mention is information sharing within Odai Town. There are several forestry-related organizations in Odai Town and for the most part they work independently from one another. However, it seems that they still have the potential to share information more effectively and create a kind of synergy from it. To realize better communication among the organizations, it would be beneficial to establish a council or hold a forum. Anticipated participants are the local government, the forestry association, companies, NPOs, etc. Local people who want to actively attend the meeting should be welcomed as well. In addition, inviting research institutions from outside may lead to a more active discussion.

Secondly, information exchange between Odai Town and other areas outside of Odai Town is also important. Communication with areas where forestry is successful may be a good chance to consider the future of forestry in Odai. For example, they may visit each other, hold study meetings, or create partnerships in certain projects.

6.2.2. Collecting unique ideas

It is often heard that ideas from people outside of town or that young people are needed in the forestry of Odai. It may mean that innovative ideas which are not limited to the existing framework are required to recover the forest industry. Accordingly, one recommendation would be holding a study tour of forestry for young people, especially for students. For example, participants may visit forests and forestry-related organizations and participate in a workshop on forestry. After that, they may make a presentation about what they learned, including any recommendations they may have for Odai Town. Although it would be a short stay, unique ideas from students may help forestry officials in Odai. Since there may be a time and/or labor limitation for the local government or the Miyagawa Forestry Association to organize such new program, they may cooperate with local NPOs, such as the Miyagawa Shinsengumi, which have already been conducting similar activities.

6.2.3. Measures against deer damage

A more thorough investigation of the deer damage situation should be conducted, and after that, measures could be considered and the any effects of the measures should be verified.

While putting fences are considered to be one measure for preventing deer damage, several ways to scare off deer may be possible. The ways include putting up scarecrows, installing machines that emit a flash or noise, applying materials to trees which smell bad to deer, etc.

Prevention of the damage through catching deer is also possible. To provide hunters who engage in catching deer, training program can be provided in cooperation with a hunting club. Deer that are caught could be

processed into different meat products and may be promoted as a local specialty of Odai Town.

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〒464-6801 愛知県名古屋市千種区不老町

ホームページ : <http://www.gsid.nagoya-u.ac.jp>

電話 : 052-789-4952 FAX : 052-789-4951