

ARCASIA 2017 JAIPUR

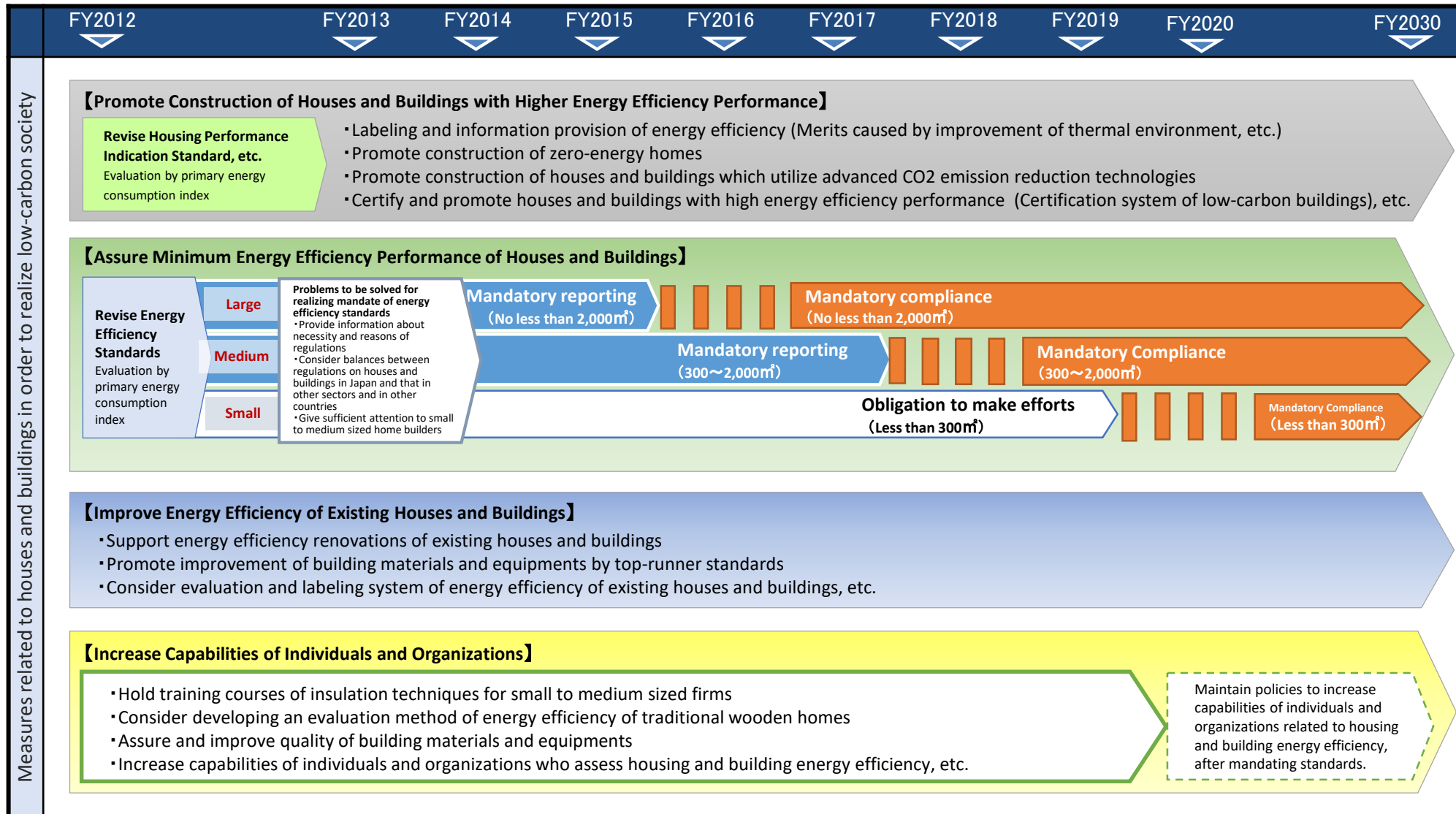
COMMITTEE ON GREEN & SUSTAINABLE ARCHITECTURE PRESENTATION FOR COUNTRY REPORT

AGENDA

1. MANDATORY COMPLIANCE TO ENERGY EFFICIENT STANDARDS FOR BUILDINGS
2. JAPAN'S GREEN RATING BUILDING TOOLS, CASBEE, BELS
3. ANALYSING TRADITIONAL WISDOM FOR CONTEMPORARY GREEN DESIGN

TERUKAZU NII
JAPAN INSTITUTE OF ARCHITECTS

1.MANDATORY COMPLIANCE TO ENERGY EFFICIENT STANDARDS FOR BUILDINGS



Source: "Tentative Roadmap Regarding the Promotion of Housing and Lifestyle in Order to Realize Low-Carbon Society." (Apr 4, 2012) 4th Conference on the Promotion of Housing and Lifestyle in Order to Realize Low-Carbon Society.

2.JAPAN'S GREEN BUILDING RATING TOOLS

COMPREHENSIVE ASSESSMENT SYSTEM FOR BUILT ENVIRONMENT EFFICIENCY
CASBEE (BEGUN SINCE 2001)

BUILDING ENERGY EFFICIENCY LABELLING SYSTEM
BELS (SINCE 2014)

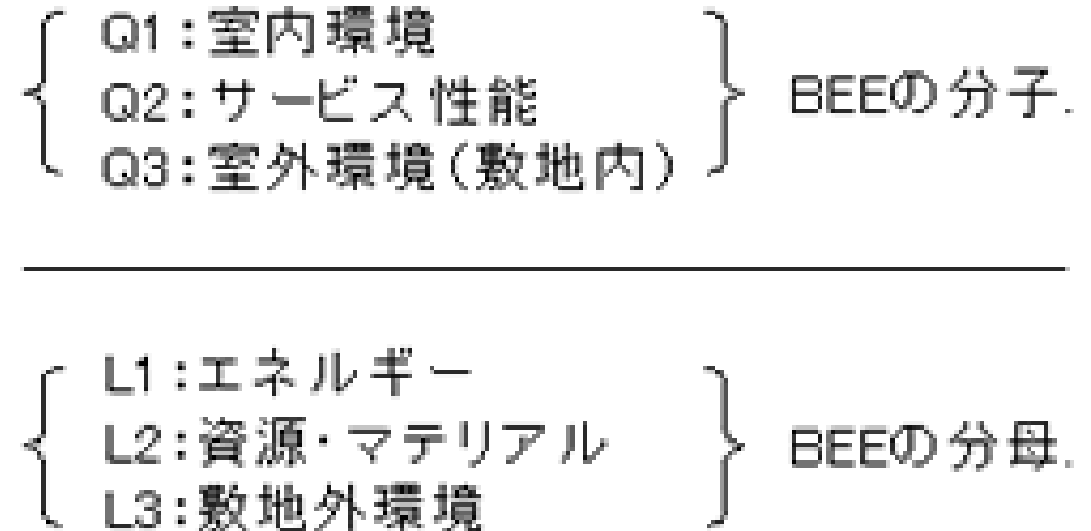
BUILDING ENERGY EFFICIENCY, $BEE = Q / L$

QUALITY OF ENVIRONMENT Q (case of residences)
Q1=APPROPRIATENESS, HEALTHINESS, SECURITY
Q2=LONG LIFE
Q3=CONTRIBUTION TO CITYSCAPE, ECOSYSTEM
OF INTERNAL ENVIRONMENT

- (1) エネルギー消費
 - (2) 資源循環
 - (3) 地域環境
 - (4) 室内環境
- 約80小項目



Q (Quality)
と
L (Load)
に分類・再構成



LOAD REDUCTION LR (case of residences)
LR1=CAREFUL USE OF WATER & ENERGY
LR2=CAREFUL USE OF RESOURCES &
REDUCE OF WASTE
LR3=CONSIDERATION FOR THE EARTH,
REGION & SURROUNDINGS

WITHIN SITE
BOUNDARY:
EVALUATE
ENVIRONMENTAL
QUALITY &
PERFORMANCE
OF BUILDING

(境界内)
Q: 建築物の
環境品質・性能で
評価する

HYPOTHETICAL
SITE BOUNDARY
仮想境界

(境界外)
L: 建築物の
環境負荷で
評価する

OUTSIDE SITE
BOUNDARY:
EVALUATE
ENVIRONMENTAL
LOAD OF BUILDING

資源消費、
CO2 排出など

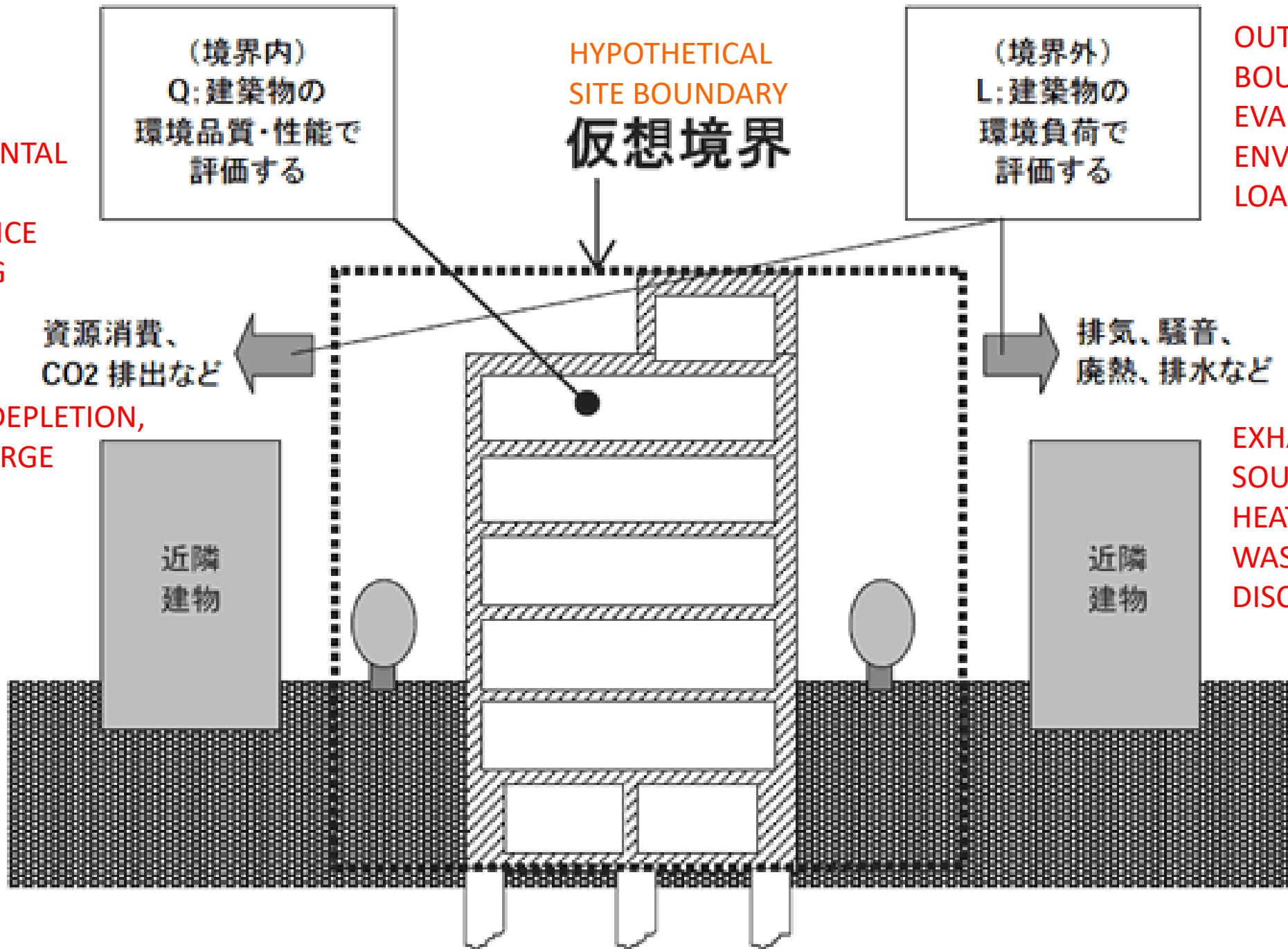
RESOURCE DEPLETION,
CO2 DISCHARGE

近隣
建物

排気、騒音、
廃熱、排水など

EXHAUST GAS,
SOUND EMISSION,
HEAT EMISSION,
WASTE WATER
DISCHARGE

近隣
建物



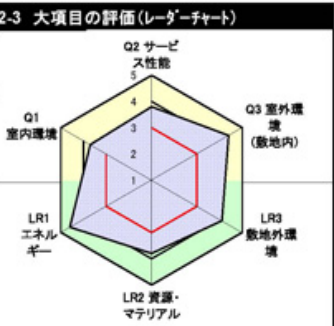
NEW BUILDING EVALUATION RESULT

BUILDING INFORMATION

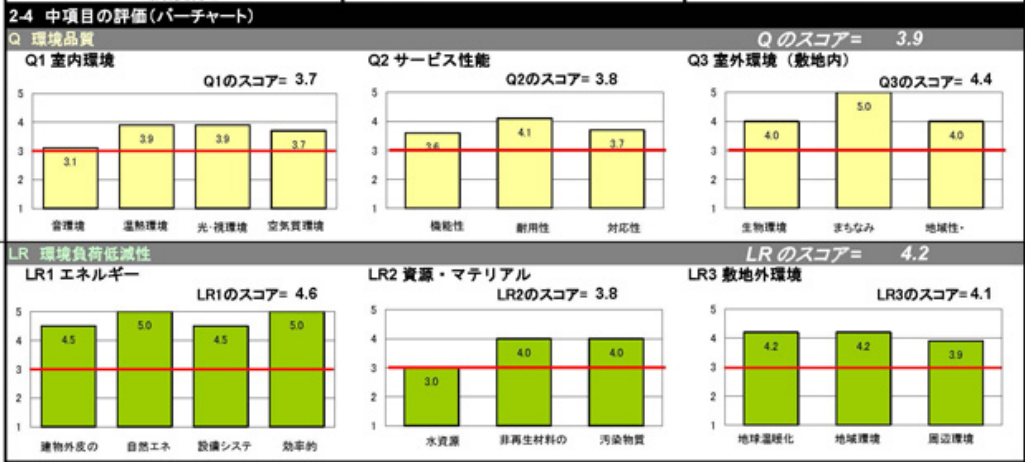
1-1 建物概要		1-2 外観	
建物名称	〇〇ビル	階数	地上〇〇F
建設地	〇〇県〇〇市	構造	0
用途地域	商業地域、防火地域	平均居住人員	XX 人
地域区分		年間使用時間	XXX 時間/年(想定値)
建物用途	事務所	評価の段階	
竣工年	201●年●月 0.0	評価の実施日	201●年●月●日
敷地面積	XXX m ²	作成者	〇〇〇
建築面積	XXX m ²	確認日	201●年●月●日
延床面積	15,000 m ²	確認者	〇〇〇

外観パース等
図を貼り付けるときは
シートの保護を解除してください

2.1 ENVIRONMENTAL EFFICIENCY BEE RANK & CHART



2.2 CO₂ LIFE CYCLE: COMPARITIVE INFLUENCE ON GLOBAL WARMING



2.3 ENVIRONMENTAL RADAR CHART Q/LR

2.4 EVALUATION BAR CHART

Q1 INTERNAL ENVIRONMENTAL QUALITY

Q2 INFRASTRUCTURAL PERFORMANCE

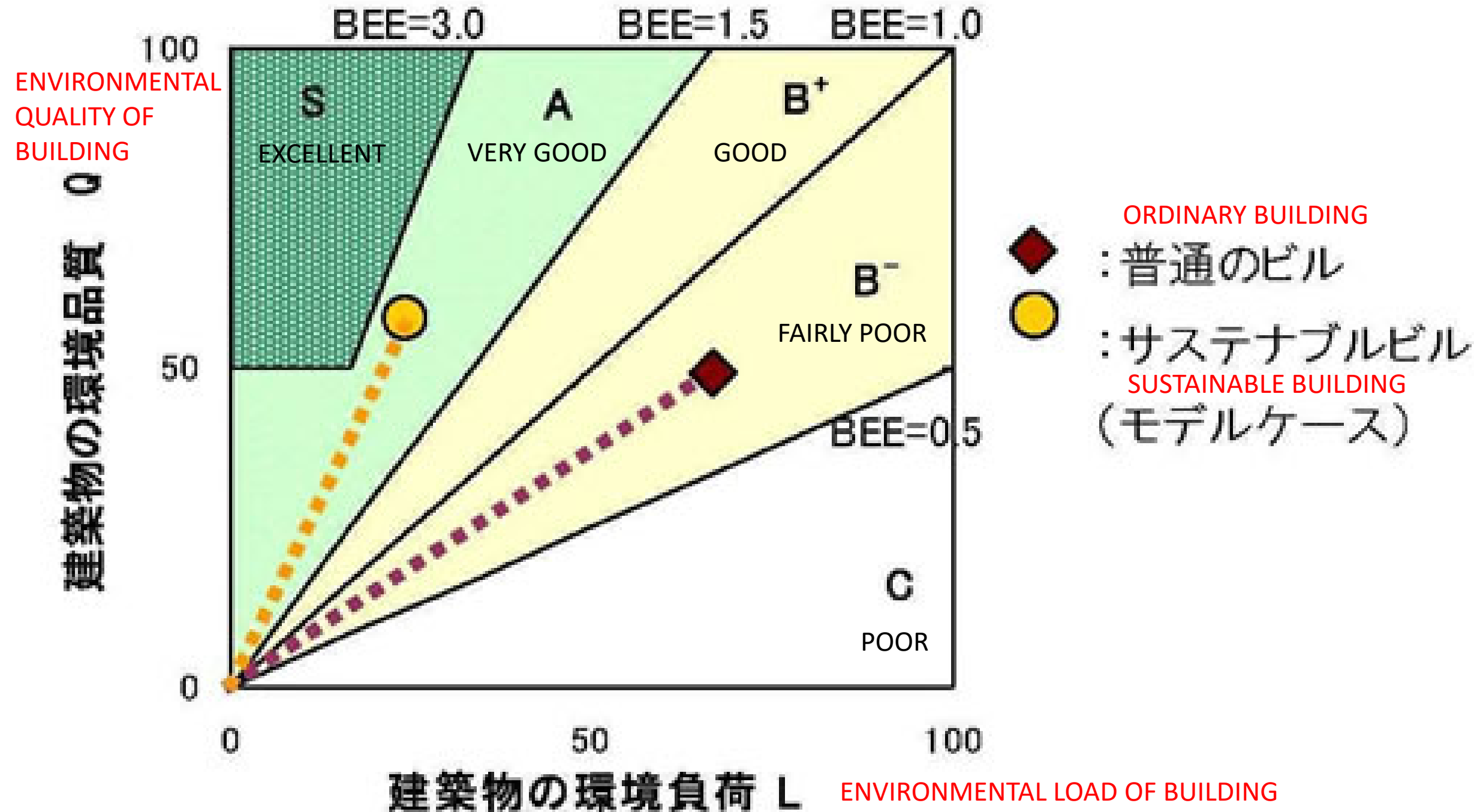
Q3 EXTERNAL ENVIRONMENT WITHIN "SITE"

LOAD REDUCTION GRAPH

LR1 ENERGY, LR2 RESOURCE, MATERIAL, LR3 ENVIRONMENT OUTSIDE SITE

3 設計上の配慮事項

総合	その他	
Q1 室内環境	Q2 サービス性能	Q3 室外環境 (敷地内)
LR1 エネルギー	LR2 資源・マテリアル	LR3 敷地外環境



3. ANALYSING TRADITIONAL WISDOM FOR CONTEMPORARY GREEN DESIGN



A CASE MODEL STUDY IN PROCESS:
STUDY ON SLOPE SETTLEMENTS IN
THE TSURUGI MOUNTAIN SYSTEM,
TOKUSHIMA, JAPAN

NEED FOR MORE HOLISTIC STRATEGY FOR BUILT SPACES THAT ARE GREEN & SUSTAINABLE

LIMITATIONS OF EVALUATION OF GREEN BUILDING THAT MAY CAUSE POTENTIAL OF REGIONAL VALUES TO BE LOST IN PRESENT SYSTEM:

1. GREEN BUILDING EVALUATION SO FAR LIMITED ONLY TO **INDIVIDUAL BUILDING TERRITORY**
2. WITHIN **LIMITED OR ENCLOSED BOUNDARIES** FOR PRACTICALITY OF EVALUATION
3. CONTEXT SO FAR MAINLY **FOR COLD, NORTHERN CLIMATES** WITH **CLOSED BUILT DOMAIN**
4. FOCUS ON **URBAN CONTEXTS**

NEW STRATEGIES NEEDED IN FOLLOWING CONTEXTS

TO RECREATE A RICH LINKAGE BETWEEN MAN & NATURE:

1. REGIONAL CONTEXT TO INCLUDE BIOLOGICAL LIFE CONSIDERED AS **AN ECOSYSTEM**
2. COMPLEX, WIDER BOUNDARIES, **CYCLIC AND SUSTAINABLE SYSTEMS** WITHIN THEMSELVES
3. SYSTEM THAT **RECOGNISES CULTURAL LEGACY OF WARM, SOUTHERN CLIMATES**
4. BOUNDARY DEFINITIONS NEED TO BE CONSIDERED AS **A REGION**
WITH CHARACTERISTIC QUALITIES



KII INLAND SEA, PACIFIC OCEAN

MOUTH OF
YOSHINO RIVER

OLD
YOSHINO
RIVER





100' YEAR OLD INDIGO FARMER CUM MERCHANT'S WORK & RESIDENTIAL COMPLEX
20 KM FROM RIVER MOUTH REFLECTING BUILT FORM REFLECTING
ANNUAL RIVER FLOODS CAUSING FERTILITY IN FIELDS



BOAT STORED IN WAREHOUSE FOR USE DURING FLOODS

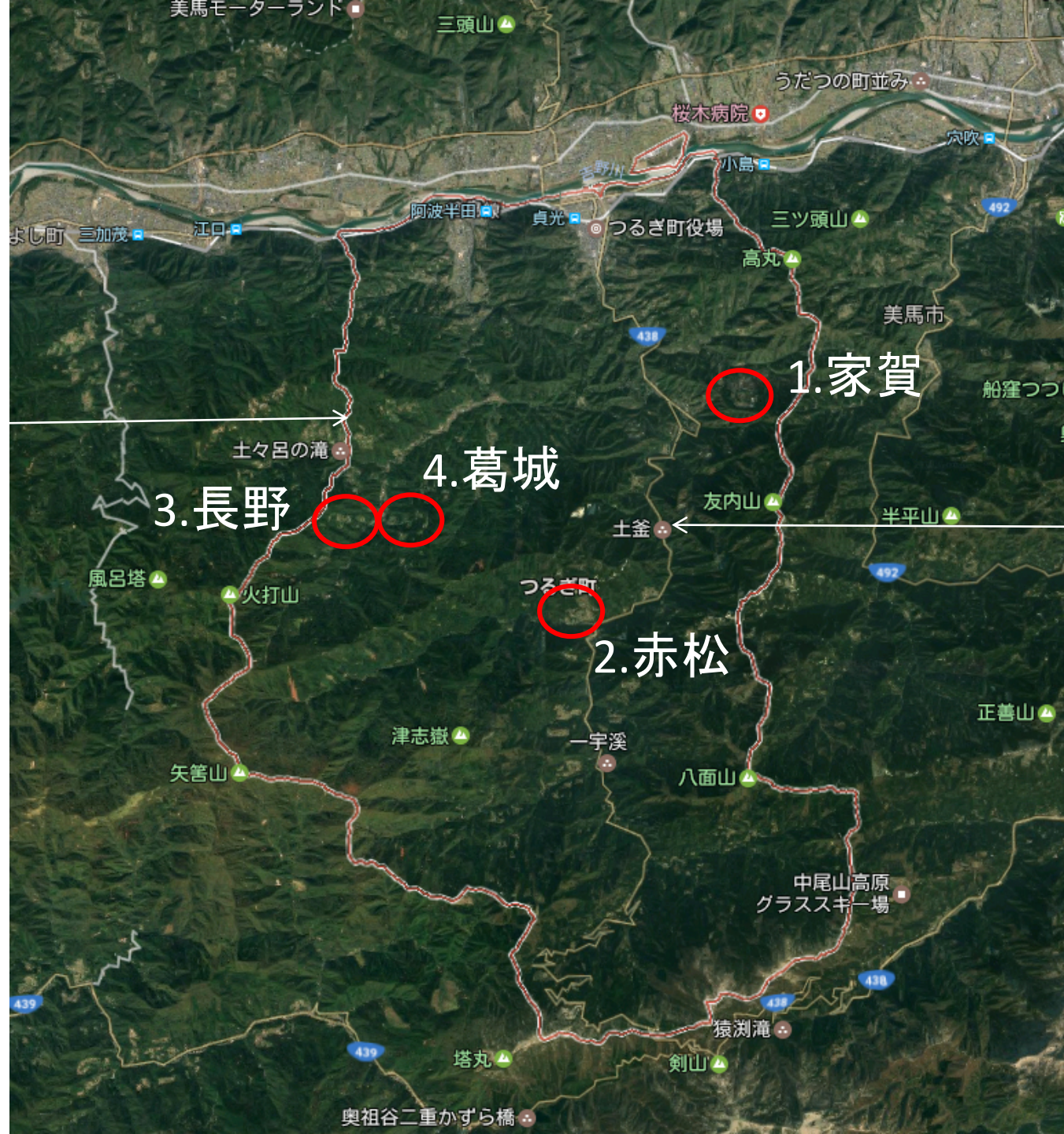


BAMBOO FOREST AS FLOOD CONTROL



FLOOD RETARDING BASIN

MIDDLE OF THE COURSE OF YOSHINO RIVER



YOSHINO RIVER

HANDA RIVER

SADAMITSU RIVER

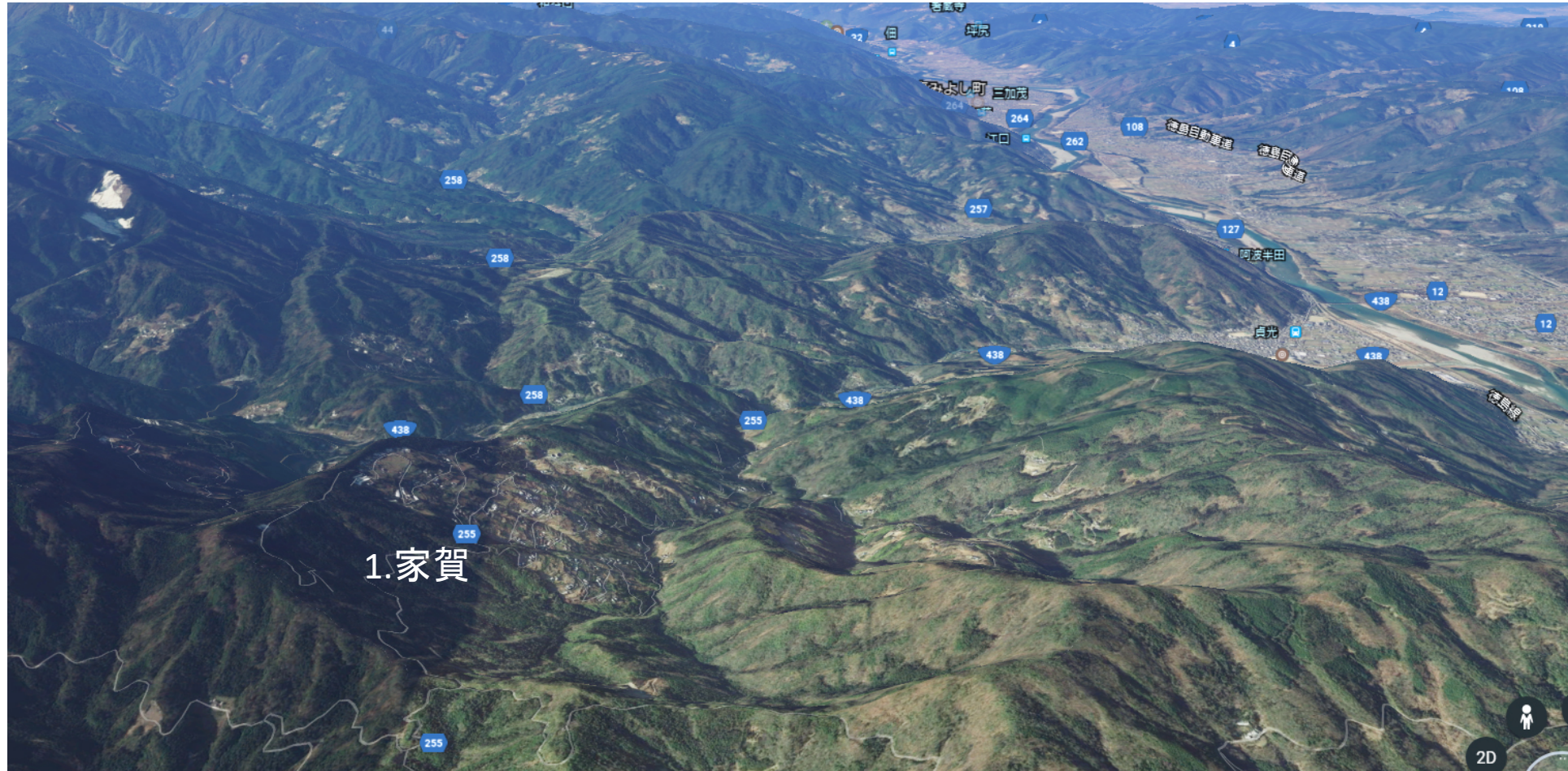
1. 家賀

4. 葛城

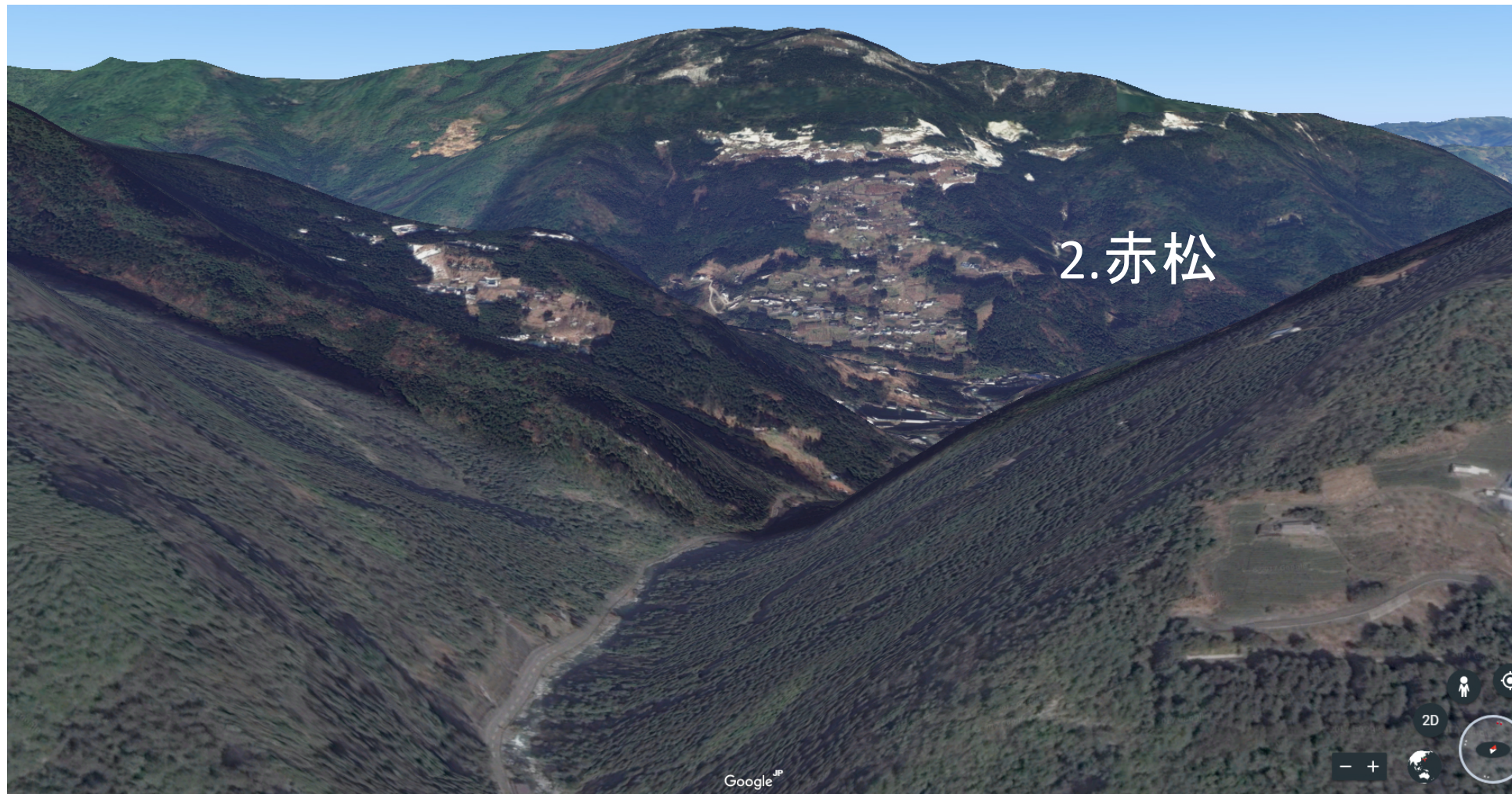
3. 長野

2. 赤松

HOUSES FACE RIVER VALLEY, IRRESPECTIVE OF SUN ORIENTATION SETTLEMENT 1.KEGA, FACING NORTH



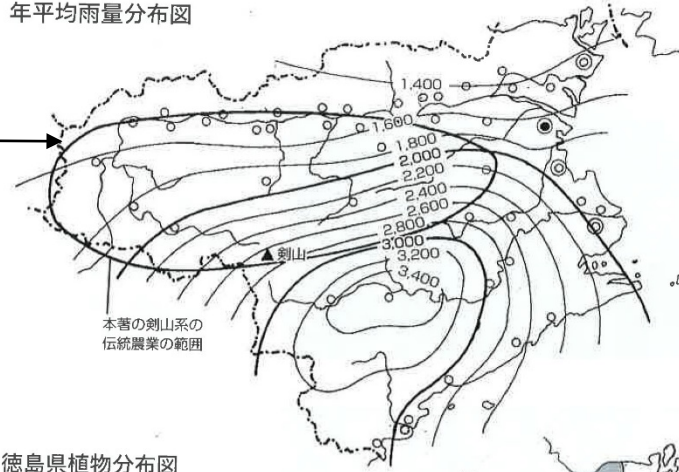
SETTLEMENT 2. AKAMATSU FACING SOUTH



SETTLEMENT 3. NAGANO FACING EAST &
SETTLEMENT 4.KATSURAGI FACING WEST



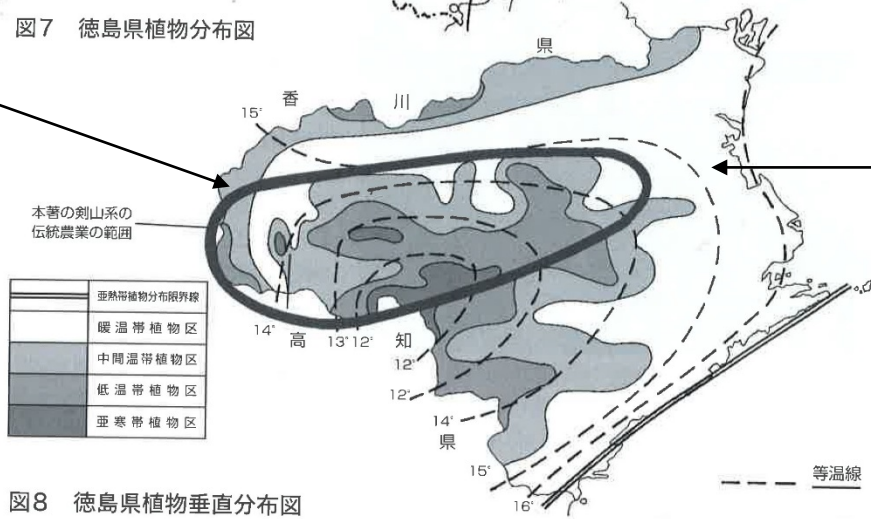
図6 年平均雨量分布図



TRADITIONAL
AGRICULTURAL SYSTEM
ALONG SLOPES IS UNIQUE
TO THIS AREA

YEARLY AVERAGE PRECIPITATION

図7 徳島県植物分布図

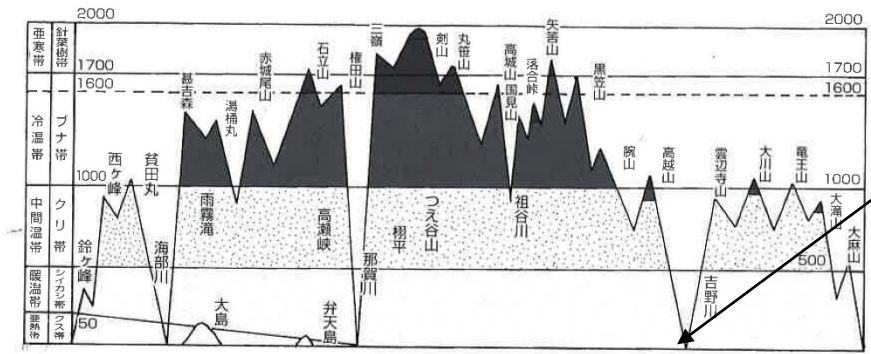


VEGETATION SUITED
TO COLD TEMPERATURE

VEGETATION SUITED TO
WARM TEMPERATURE

WIDE VARIETY OF DISTRIBUTION OF
VEGETATION ACCORDING TO HEIGHT
& TEMPERATURE SHOWN IN PLAN &
SECTION

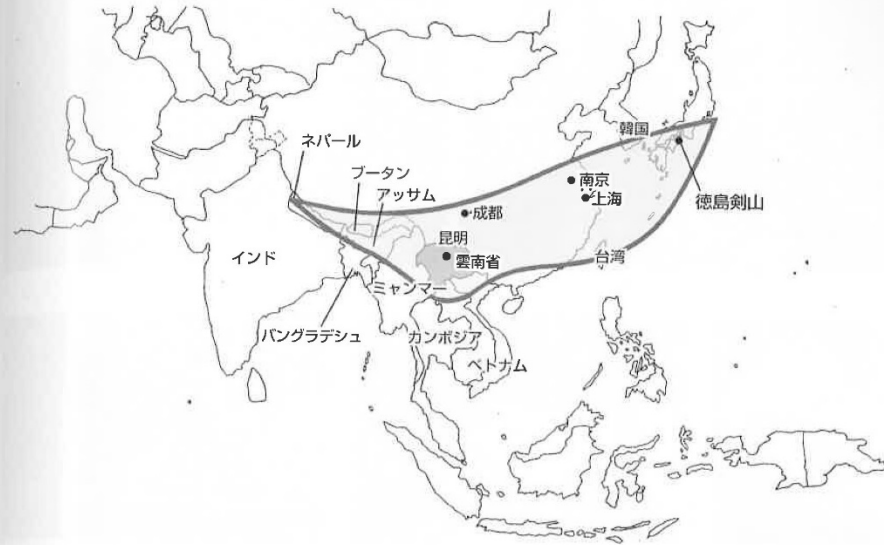
図8 徳島県植物垂直分布図



YOSHINO RIVER

林博章著
「剣山系の世界的農業文化遺産」より

図12 東アジアの照葉樹林帯(文化帯)



CULTURAL ZONE OF EVERGREEN,
BROAD LEAVED FORESTS OF EAST ASIA

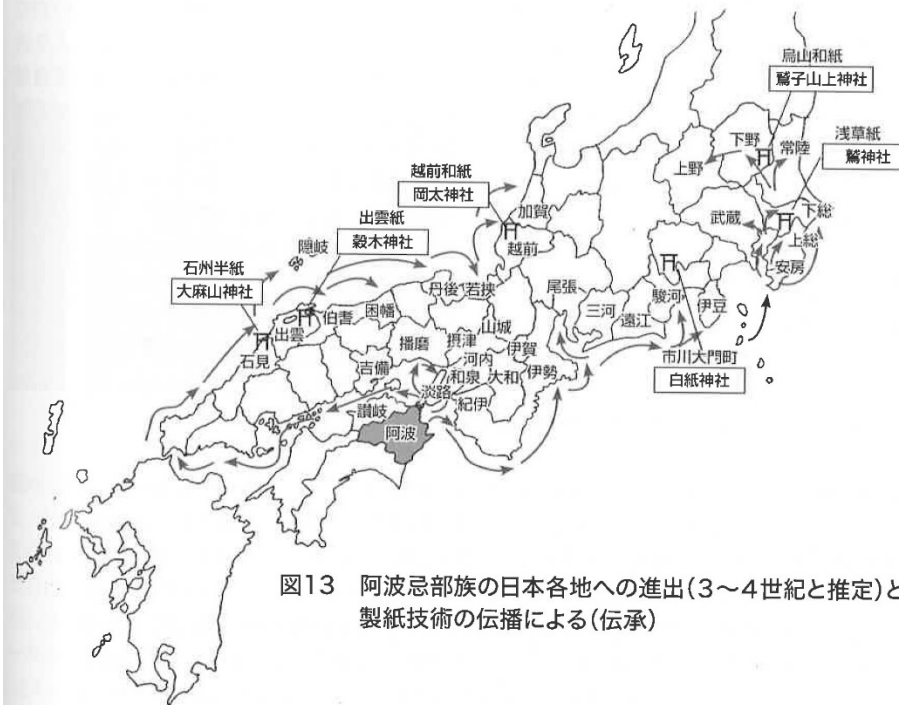


図13 阿波忌部族の日本各地への進出(3~4世紀と推定)と製紙技術の伝播による(伝承)

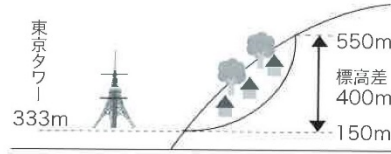
IN THE 3rd~4th cent. PEOPLE OF
THIS REGION ARE SAID TO HAVE
SPREAD THE CULTURE OF PAPER
MAKING

林博章著
「剣山系の世界的農業文化遺産」より

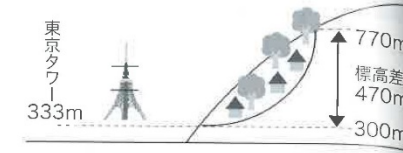
**KEGA
VILLAGE**

図10 ソラ世界の標高差

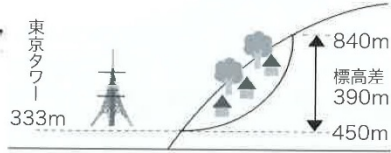
(1)つるぎ町貞光の家賀集落



(2)つるぎ町一宇の赤松集落



(3)三好市東祖谷の落合集落



(4)三好市山城町の上名集落(平)

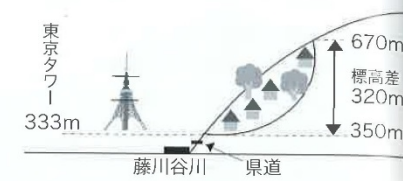
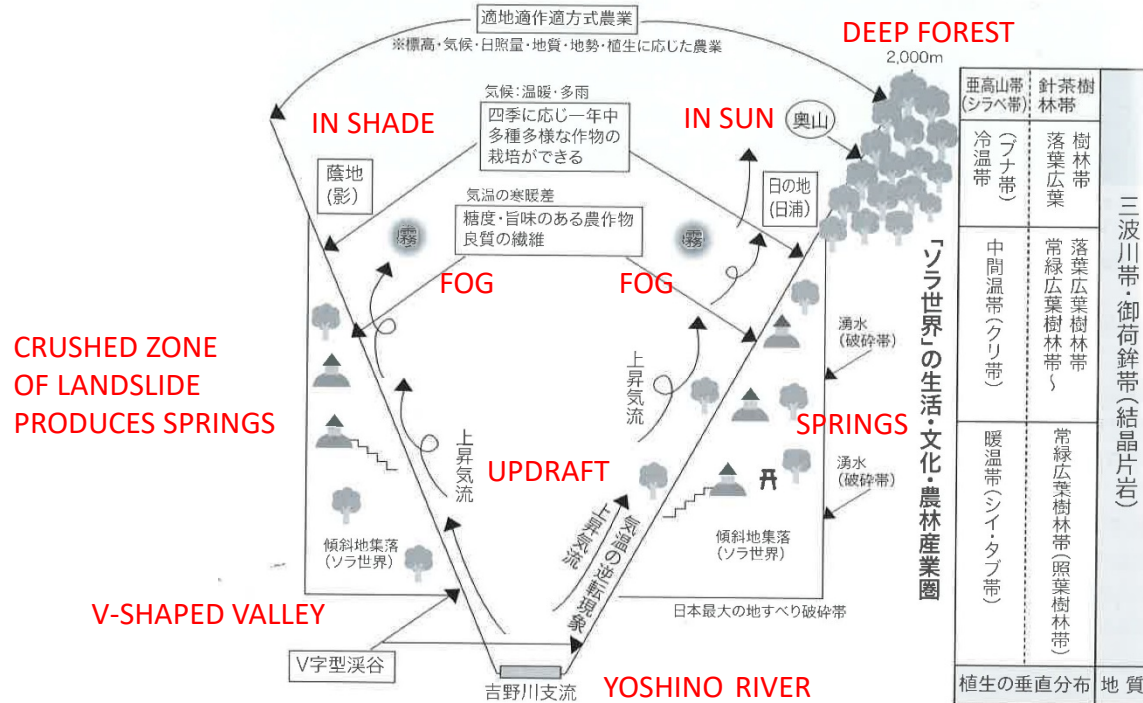


図11 ソラ世界の構造



**CRUSHED ZONE
OF LANDSLIDE
PRODUCES SPRINGS**

V-SHAPED VALLEY

YOSHINO RIVER

**VERTICALLY DEVELOPED
STRUCTURE OF
“WORLD IN THE SKY” CENTRED
AROUND RIVER BELOW
AKAMATSU
VILLAGE**

**SUITABLE LAND FOR
SUITABLE CROP BY
SUITABLE METHOD**

**SUITABLE TO THE SEASON
VARIOUS CROPS GROW
ALL THROUGH THE YEAR**

**LARGE TEMPERATURE
DIFFERENCE PRODUCES
SWEET, TASTY, FINE -FIBERED
PRODUCTS**

林博章著
「剣山系の世界的農業文化遺産」より

・また、剣山系の山間部に細胞のように形成された傾斜地集落は、外膜（森林）を有する領域をもち、その領域の範囲内で、自然とのバランスを図る資源の自己調整機能が働いている。その領域は「森林」や「涵養林」、「辻守り」の習俗で守られている。無制限な拡大を求めない、資源の消費を制限する集落システムは、成長の限界が近づいた今後の地球社会や新たな経済システムの構築に大きな示唆を与えることになるだろう。

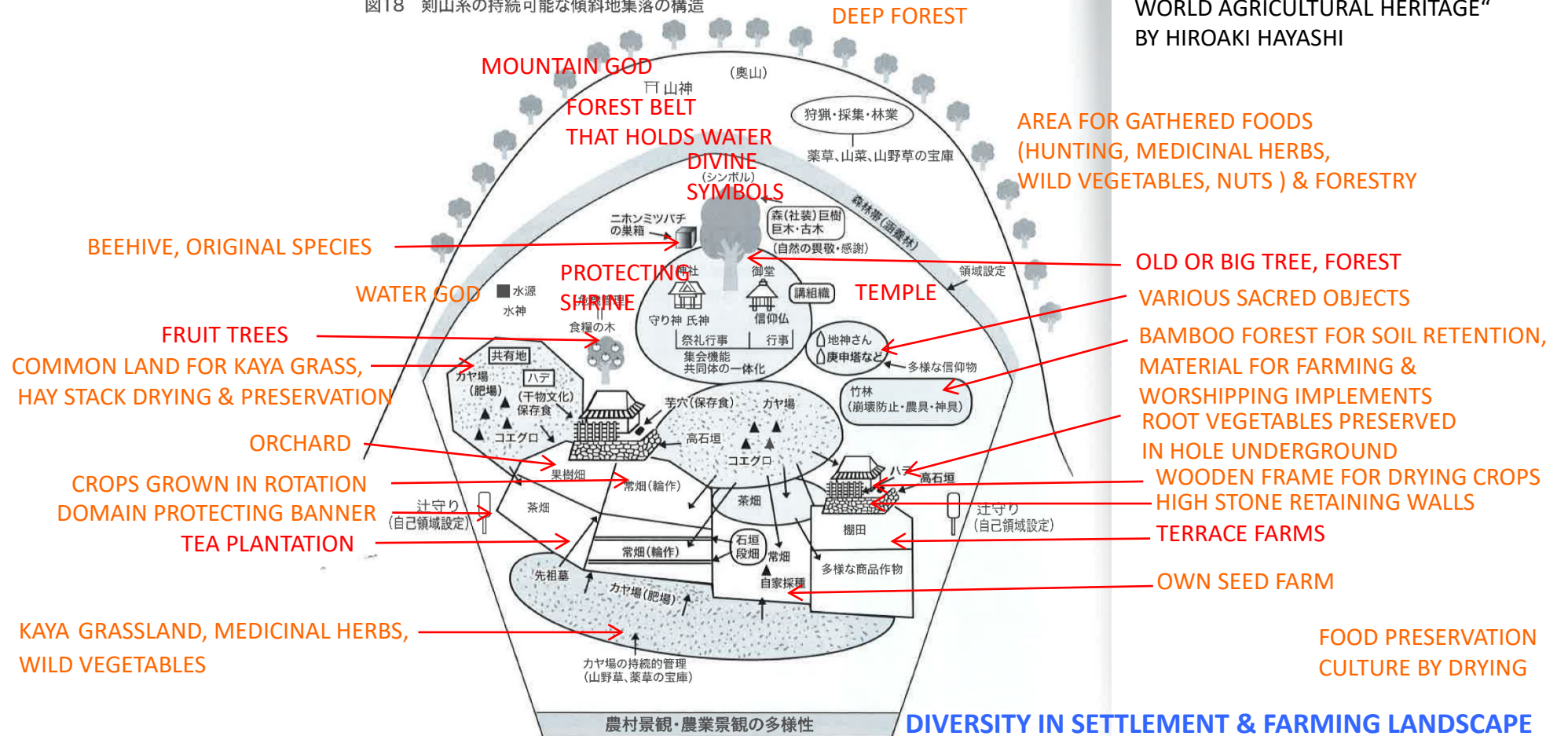
・なお 剣山系の傾斜地農業システムは「閉鎖系」ではない。外部と積極的な情報交換を行い、

出るといった山と海との交流通させた歴史もあった。大和朝剣山系の農産業技術は、阿波開拓精神」を持ちあわせた「開

STRUCTURE OF SELF SUFFICIENCY CYCLE IN SETTLEMENTS ALONG SLOPES IN TSURUGI MOUNTAIN ZONE

林博章著
「剣山系の世界的農業
文化遺産」より
FROM “TSURUGI MOUNTAIN SYSTEM
WORLD AGRICULTURAL HERITAGE”
BY HIROAKI HAYASHI

図18 剣山系の持続可能な傾斜地集落の構造



An aerial photograph of a mountainous region. The landscape is dominated by lush green forests covering steep hillsides. In the center, a small village is nestled in a valley, featuring several traditional-style houses with dark roofs and some open fields. A river flows through the lower right portion of the image. A white crosshair is overlaid on the image, with a vertical line extending from the top to the bottom and a horizontal line extending from the left to the right. Three labels are placed near the crosshair: 'MOUNTAIN PEAK' at the top, 'GROVE OF VILLAGE SHRINE' on the right side, and 'RIVER' at the bottom right. The overall scene is bright and clear, suggesting a sunny day.

MOUNTAIN PEAK

GROVE OF VILLAGE SHRINE

RIVER



COMMUNITY FCILITY: TEMPLE

VARIOUS CROPS GROWING ON THE SLOPE



STONE RETAINING WALLS CONTROLLING HEAT BY STORAGE AND RELEASE:
POTENTIAL OF LOCAL MATERIAL & TECHNOLOGY ENHANCED



A photograph of a rural Japanese farmstead. In the foreground, there is a field of green plants with yellow flowers, supported by numerous vertical bamboo stakes. Behind the field, a long wooden drying rack is built on a stone retaining wall. To the left, a traditional Japanese house with a tiled roof is visible. In the center, a larger house with a white metal roof is partially covered by the drying rack. The background consists of a steep, forested hillside. Two white arrows point from text labels to the drying rack and the metal roof.

DRYING RACK ABOVE STONE RETAINING WALL,
ENHANCING DRYIN POTENTIAL

STRAW ROOFING PRESENTLY
COVERED BY METAL SHEETING

TEA GARDEN ENHANCED BY AIR CURRENT FROM THE RIVER VALLEY



CROPS GROWN ALONG CONTOUR STOPS LANDSLIDE,
THE RECYCLED HAY CREATING BACTERIA THAT
NOURISHES CROP, REDUCING TILLING.
WATER DRAINS ON EITHER SIDE OF FIELD



AGRICULTURE ALONG 40° STEEP VALLEY PREVENTS LAND SLIDES

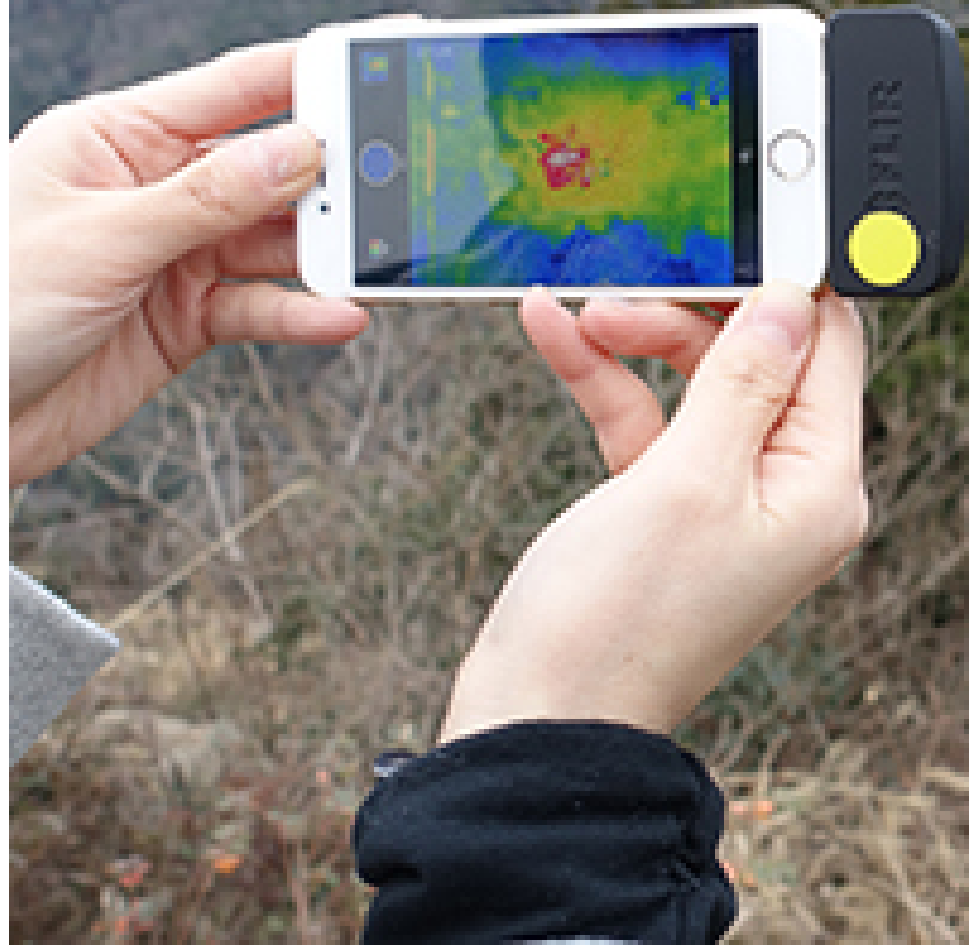


SIMPLIFIED MEASUREMENT & ANALYSIS OF
TEMPERATURE, HUMIDITY & LUMINOUS INTENSITY BY THERMOGRAPHY
WIND FLOW ETC.





THERMOGRAPHIC READING OF HEAT RADIATION FROM STONE RETAINING WALLS



STUDY CONTINUES

