
HOUSE CONCURRENT RESOLUTION

REQUESTING THE COLLEGE OF TROPICAL AGRICULTURE AND HUMAN
RESOURCES OF THE UNIVERSITY OF HAWAII AT MANOA TO STUDY THE
FEASIBILITY OF MANDATED OR INCENTIVE BASED VOLUNTARY
ROOFTOP LANDSCAPING AND AGRICULTURE IN URBAN DISTRICTS.

1 WHEREAS, in certain areas of the State, the amount of
2 usable agricultural zoned lands is vanishing due to increased
3 urban sprawl; and
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5 WHEREAS, examples of rooftop landscaping already exist in
6 Honolulu, including the Hawaii State Capitol Building and the
7 Kalanimoku Building, where the roof over a large area of the
8 parking garage is covered with fields of open grass, flowers,
9 and shrubs; and
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11 WHEREAS, scientific testing in several countries has shown
12 that rooftop landscaping helps to reduce the amount of
13 pollutants and dust particles in the air and water; and
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15 WHEREAS, vegetation on city rooftops helps to reduce what
16 is known as the heat island effect by blocking the sun's rays
17 and conserving energy by keeping buildings cooler, thereby
18 reducing the necessity of cooling systems and providing sound
19 insulation; and
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21 WHEREAS, the definition of "urban heat island" is a
22 metropolitan area that is considerably warmer than the
23 surrounding areas, due in part to the lack of vegetation and
24 standing water and the thermal properties of building materials,
25 such as concrete and asphalt; and
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27 WHEREAS, because flora acts as a natural heat absorber and
28 insulator, roof top landscaping can help to reduce electricity
29 consumption; and
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1 WHEREAS, in a study conducted by the Los Angeles-based Heat
2 Island Group, it was found that rooftop cooling efforts could
3 lead to an annual energy savings of \$16,000,000; and
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5 WHEREAS, the economy of the State of Hawaii is largely
6 dependent on the visitor industry, the main attraction being the
7 natural beauty of our island state, which should be evident in
8 urban areas, as well as forests, parks, and conservation areas;
9 and
10

11 WHEREAS, extensive positive examples of rooftop landscaping
12 and agriculture can be found throughout Germany, Japan,
13 Singapore, Australia, Canada, Switzerland, and China and
14 experimental projects are underway in Portland, Oregon; Chicago,
15 Illinois; and New York City, New York; and
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17 WHEREAS, the Changi Hospital in Singapore converted a bare
18 concrete roof that diverted sunlight into nearby wards, causing
19 unwanted glare and heating, into a highly productive hydroponic
20 farm of cherry tomatoes and herbs used to provide fresh healthy
21 meals to patients; and
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23 WHEREAS, a survey done by Ngee Ann Polytechnic students
24 found that approximately five hundred twenty-three acres of
25 apartment and commercial rooftops in four suburbs of Singapore
26 use hydroponics to grow fresh vegetables and thus noted that,
27 managed properly, five hundred twenty-three acres could produce
28 up to thirty-nine thousand tons of vegetables a year at a value
29 of around \$24,500,000; and
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31 WHEREAS, the current law in Germany gives owners of newly
32 constructed buildings the following three options regarding
33 rooftop landscaping of which the first is the most economical:
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- 35 (1) Carry out green rooftop landscaping on the newly
36 constructed building;
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- 38 (2) Carry out green landscaping in a different location
39 from the newly constructed building but with an area
40 equivalent to the rooftop area; or
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- 42 (3) Pay a fine; and
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1 WHEREAS, the current law in Tokyo mandates that any newly
2 constructed building with a ground area exceeding one thousand
3 square meters must use at least twenty per cent of the area for
4 green rooftop landscaping; now, therefore,

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6 BE IT RESOLVED by the House of Representatives of the
7 Twenty-third Legislature of the State of Hawaii, Regular Session
8 of 2006, the Senate concurring, that the College of Tropical
9 Agriculture and Human Resources of the University of Hawaii at
10 Manoa is requested to study the feasibility of mandated or
11 incentive based voluntary rooftop landscaping and agriculture in
12 urban districts; and

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14 BE IT FURTHER RESOLVED that while the College of Tropical
15 Agriculture and Human Resources is taking the lead, this study
16 should be a collaborative effort between the Department of
17 Agriculture, the planning departments of the four counties, the
18 Hawaii Farm Bureau, the Landscape Industry Council of Hawaii,
19 the American Planning Association, Hawaii Chapter, the Urban
20 Land Institute, and the University of Hawaii School of
21 Architecture; and

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23 BE IT FURTHER RESOLVED that the College of Tropical
24 Agriculture and Human Resources is requested to study buildings
25 in urban districts in subcategories, such as commercial, hotel,
26 multi-family, industrial, or mixed use with a commercial
27 component, so that the findings can be used to gauge the
28 feasibility of rooftop landscaping and agriculture in each
29 specific area; and

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31 BE IT FURTHER RESOLVED that the College of Tropical
32 Agriculture and Human Resources is requested to submit its
33 report to the Legislature not later than twenty days prior to
34 the convening of the Regular Session of 2007; and

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1 BE IT FURTHER RESOLVED that certified copies of this
 2 Concurrent Resolution be transmitted to the Dean of the
 3 University of Hawaii College of Tropical Agriculture and Human
 4 Resources, the Chairperson of the Board of Agriculture, the Dean
 5 of the University of Hawaii School of Architecture, the head of
 6 the planning office of each county, the Hawaii Farm Bureau, the
 7 Landscape Industry Council of Hawaii, the American Planning
 8 Association, Hawaii Chapter, and the Urban Land Institute.

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