1. INTRODUCTION
1.1 Research Background and Objectives
Recently, trend of mega-event as a grand scale development such as Olympic Game\(^1\), World Expo, stadium\(^2\) and convention are strategy for urban revitalization. These almost all started implementation as "scrap and build", clearing of inhabitants before it started development and constitutes outside city. This pattern seems to conflict sustainable development. Redevelopment strategy should not be the ultimate vision, but moderate, achievable vision and kindle or condition other to achieve similar vision\(^3\). It could be alternative strategy that has potential to engage with flexibility and urban dynamic.

Recommending urban catalyst suits urban redevelopment strategy. It is a tool for urban design that can act from moderate or smaller element with incremental purpose and support continuous regeneration of urban fabric as well as increases users. However, empirical studies of urban catalyst are unknown and less this field study. Research objectives are intended to clarify urban catalyst characteristics and projects in Japan, overview of the case studies as well as investigate how it conforms to sustainable development.

2. RESEARCH QUESTIONS AND METHODOLOGY
(1) What is an urban catalyst? The objective attempts to understand urban catalyst concept and related projects that is done by literature review.

(2) What kind of project can be urban catalyst? Question developed by hypothesizing that smaller element or any element such as temporary setting, event and other can play in the role of catalyst. Questionnaire survey is used for searching a variety of cases, afterward grouping and exploring based on category of function, key project, permanent and temporal and emerging criteria of project to classify cases become second objective. Respondent of questionnaire are specialists and students related to urban, architecture, and environmental studies. Moreover, cases of IMS/Solaria Plaza and Hotel Il Palazzo are investigated on how these project impacts surrounding area. Secondary data such as project description delivers a history, intent of project, map, and sequence of development are needed for analysis. Additionally for case of Hotel Il Palazzo, further interview was done. Respondent in the interview is Mr. Taro Fujiwara who is the project manager of Hotel Il Palazzo.

(3) Is urban catalyst a strategy for sustainable urban development? Last research question and objective aim to assess how the urban catalyst acts as alternative and sustainability for urban design strategy.

3. LITERATURE REVIEW
3.1 Urban Catalyst Concept
Urban design for city center, instead of imitating another format image of the city or inject large master plan, using various available tools is more suitably thought of as a process of arranging catalytic reactions that flexible to changes and urgency. Urban catalyst offers modest vision, but impact should be substantial and integrates existing urban fabric (Fig.1).

Urban catalyst original concept was defined into 8 characteristics as following; (1) New element modifies the elements around it. (2) Existing elements are enhanced or transformed in positive ways. (3) The catalytic reaction does not damage its context. (4) A positive catalytic reaction requires an understanding of the context. (5) Not all catalytic reactions are the same. (6) Catalytic design is strategic. (7) A product better than the sum of the ingredients. (8) The catalyst can remain identifiable. These characteristics have described by investigated downtown revitalization projects in many cities USA, in particular Grand Avenue shopping center in Milwaukee city in the Book of American Urban Architecture: catalysts in the design of cities\(^3\).

Fig.1 conceptual diagram of different strategies
3.2 Metaphor of Catalyst to Urban Study

Analog of catalyst definition in chemical course to urban study (Table 1). Finding of positive efforts of urban catalyst to utilize in urban development. However, scientific course and urban study are different in its application.

4. QUESTIONNAIRE RESULT

This section attempted to classify catalyst projects acquired from questionnaire survey. Total respondents have 48; divided to 15 experts, 14 master students and 19 undergraduate students. Total cases of 121; in which 39 errors unspecified place and identical place were found.

4.1 Classification of Projects

Cases are divided in two groups according to persistency of project as permanent and temporary. Permanent element covers on building and construction. Temporary element means setting or usage in the moment of specified time.

(1) Permanent cases (Table 2): Although, impact of each project contributes an increasing of users and magnetize an investment, they also have other role in particular. For example, multipurpose building and sport facilities with distinctive architecture serve as a landmark that can improve image of the area. However, all of cases are not imply to be urban catalyst. According to considerate of project development as emerging and modification (Fig.2) shows that in the emerging cases might effect to natural area due to they are located outside city with large scale development. Furthermore such kind of suburb shopping mall are located only for business opportunities position, not related to surrounding integration.

(2) Temporary cases (Table 3): Most of cases are traditional and contemporary events, which are held annually. Commercial, art and music events are held occasional. Temporary setting or installation can be divided to three cases including street vendors, Yatai (food stall) that appear at night; and container design project as pilot project. Although temporary cases can attract people, improve local benefit and catalyze social integration, impact on urban fabric change or surrounding improvements still lack of evidences.

<table>
<thead>
<tr>
<th>Table 2 permanent cases</th>
<th>Table 3 temporary cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMERCIAL &amp; RETAIL (18)</strong></td>
<td><strong>EVERYDAY</strong></td>
</tr>
<tr>
<td>![Image](307x337 to 539x495)</td>
<td><strong>ANNUAL</strong></td>
</tr>
<tr>
<td><strong>MULTI PURPOSE &amp; OTHER (13)</strong></td>
<td><strong>SEASONAL</strong></td>
</tr>
<tr>
<td>![](Image 357x89 to 539x141)</td>
<td><strong>OCCASIONAL</strong></td>
</tr>
<tr>
<td><img src="383x144" alt="Image" /></td>
<td><strong>Hakata lightup walk / Hakata 2012</strong></td>
</tr>
<tr>
<td><img src="400x84" alt="Image" /></td>
<td><strong>Container Design Project</strong></td>
</tr>
<tr>
<td><strong>EDUCATION &amp; INSTITUTE (4)</strong></td>
<td><strong>London</strong></td>
</tr>
<tr>
<td><img src="463x237" alt="Image" /></td>
<td><strong>Parade, NL</strong></td>
</tr>
<tr>
<td><strong>SPORT FACILITIES (2)</strong></td>
<td><strong>IMS / Solaria Plaza</strong></td>
</tr>
<tr>
<td><img src="418x267" alt="Image" /></td>
<td><strong>Hotel B Palazzio</strong></td>
</tr>
</tbody>
</table>

5. CASE STUDIES (Table 4)

Empirical study in this research looks in Fukuoka City center in particular impact of new setting for retail activities.

Table 4 case studies descriptions

- **IMC**
- **Solaria Plaza**
- **Hotel B Palazzio**

<table>
<thead>
<tr>
<th><strong>selling space</strong></th>
<th><strong>opening</strong></th>
<th><strong>annual</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>17105 (㎡)</td>
<td>1986-1989</td>
<td>1986-1989</td>
</tr>
</tbody>
</table>
called IMS/Solaria Plaza, and Hotel IL Palazzo as luxury hotel. Reasonable selection of these as case studies due to their location in city center and similar chronology. Moreover, cases show difference contexts, IMS/Solaria are located in vibrant area. While Il Palazzo as a hotel is located in inert area, instead it changes area.

5.1 IMS and Solaria Plaza, Tenjin
They are an appropriate case study because both are new fashions shopping center in modernization of downtown. Trend of development in downtown had been guided into south area of Tenjin, however its impact seemed to be spurring into west and east sides. In 1986-1993 the trend of development flow to Nakasu-Kawabata area. Later, in 1994, Iwataya Z-side had emerged beside Solaria Plaza (Fig.3).

5.1.1 Role of IMS and Solaria Plaza as a Catalyst
(1) Although case of IMS/Solaria cannot confirm to have influenced others modification directly, new fashion building offers multipurpose activities that seemed as new type of shopping center which can attracted various interested groups that impels others to conform to new image of city center5), for example Tsuin Bldg, Kego Park, ACROS, Elgala Daimaru as well as Iwataya z-side.

(2) Surrounding elements are enhanced in positive way. Later in 1990, Kego Park was upgraded to comply Solaria Plaza, Bridge Park and Fukuhaka Deaibashi was created for connectivity. Fukuoka Nishitetsu Station had been upgraded combine with Mitsukoshi is a department store, and also BEST Denki was upgraded. These show the vicinity had been enhancing and transforming rather than destroying Furthermore, project impacts have influence to alternative choice to shop that increases pedestrian in district. Comparison graphs show increase of pedestrian traffic number around Shin Iwataya, Kirameki nishi Dori. On the other hand, same activity as shopping always competes each other. Some business was damaged, for example pedestrian traffic number in Shopper Fukuoka, Matsuya Ladies decreased (Fig.4).

5.2 Hotel IL Palazzo, Haruyoshi
Project was intended to design a hotel combined with relaxing activities such a restaurant and bar with prominent architecture. Nowadays it becomes a landmark of district and influence to others.

5.2.1 Improvement of Area Image by Hotel IL Palazzo
Hotel IL Palazzo is an original hotel which was intended to show a possibility of architecture and design to enhance image of Haruyoshi which once was a red-light district7). Composition of building and good quality of design seems to uplift the atmosphere. Many restaurants are increasing and improving their property to comply with changes (Fig.5). Place suits for tourists, family, woman and everyone who want to enjoy the one hot spot of gourmet in city. Furthermore, impact of project contributes sense of place and local consciousness. In present, there is association among Il Palazzo and local enterprises who agree in the same vision to improve their environmental and business. Recently, there is cooperative project such as joint of business campaign and purposed of street revitalization project called “Bourbon

![Fig.3 Area transformation](image)

![Fig.4 comparative pedestrian traffic (holiday)](image)

![Fig.5 increasing of restaurants in riverfront.](image)
Street”. These shows Il Palazzo also plays as a catalyst for social integration rather than only physical and economic opportunity. However, there are also some external affects that constrain district transformation. Canal City is large-scale shopping center and Tenjin Minami Subway Station. Both impacts can attract people to pass area in day times.

Impacts of Il Palazzo do not damage the existing context. Impacts of Il Palazzo do not change the entire red-light district image; it only lifts up the area and other hotel to not intensive with ”love hotel”. Nowadays district still have some ”love hotels” with combined restaurant and bar (Fig.6). Furthermore, layout of building and design are corresponded to composition of alleys and street pattern in district. These situations refer to Il Palazzo development attempted to respond urban setting (Fig.7).

6. CONCLUSION
6.1 Urban Catalyst Concepts Discussion
(1) Urban catalyst is not opportunistic. Sometime business venues such as suburb shopping mall takes the advantage from location to operating own business due to emerging of residents or always touches train and subway station. It does not seem to be catalyst that influence to vicinity modification. In the other hand, case of Il Palazzo showed that the bold vision attempted to create an influence of architecture to change the area. They think like catalyst, if Il Palazzo is thought like private enterprises, they set opportunistic above everything, and standpoint of business feasibility. Then Il Palazzo is a simple hotel and have no impacts.

(2) Urban history layers have a sense of depth. Catalyst is both of new and old in the same time. Case of IMS and Solaria Plaza, they were being new in one layer. Their impact might affect new other things in next layer.

(3) Positive outputs of urban catalyst are understood in decade, and effect in long term. Evidence of IMS and Solaria Plaza shows that Daiei and Matsuya Ladies shopping area might have affect after new business occurred. However, trend of development goes positive for local retail or Small and Medium Enterprises (SME) located in Daimyo district. Although, evidences of Il Palazzo showed that might affect to the original character of area by affecting to workers and some of hostel business, which was removed. In long term affect, the shows positive outcomes to small retail and residents.

(4) Not all of urban catalyst can speed up change, particularly in urban fabric. IMS and Solaria Plaza located in city center with dynamic people and investment. District is changes following usage of people, and always improves along population density. While Il Palazzo changes gradually.

6.2 Character of Catalyst Project in Japan
It is accepted that station, shopping center and tourist attractions are mechanism for townscape vitality and magnetize investment. However in Fukuoka, there are unexpected outputs from smaller scale activities and hotel a function that can contribute bustle. Furthermore power of private sector can also acts as catalyst for social interaction, which bring into integrated benefit in area.

6.3 Sustainable Urban Transformation
Urban catalyst has impact to new venues. However, the goal of newcomer’s projects are typically purposed for economic gain and lack of associated vision. Because of this situation urban designers and planners have to be a man-catalyst to constrain and arrange new venues and existings to recognize the vision. The product will be more integrative and controlled rather than transformed undirectedly. Furthermore we must understand how urban catalyst works effectively, because when a project is relevant to a place, it responds to all the dynamic interrelationships derived from its existing architectural, social, and spatial fabric.

References
5) 小川博和. 福岡市天神地区の開発集積過程に関する研究, 九州大学人間環境学府. (2009)
6) 田村馨 . 変化する「ふくお t か都心」. 西日本新聞社 (2004).