

## *Final Activity Report of IRG-04-2005*

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IRG Code	IRG-04-2005
Name of IRG	Scale Free Characteristics of the Traffic Network (SCAFT)
Status	Completed
Representative Member	Mr. Bahram Mojarrabi, Complex adaptive Traffic and Transport Systems (CATT SYSTEMS)
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### 1. Activity of IRG in 2012-2013

This section covers our activities for the year 2012-2013. We focused our activities on these extremely challenging and risky sustainability research areas:

The first was centered on developing a new and objective thermodynamic based index of happiness. We proceed to publish a paper. We now know that temples are thermodynamic necessity for social stability and sustainable happiness. The second activities were aimed on cultural festival states and their roles on transfer and promotion of global cultural learning and spread of happiness. Our work may partly explain the ubiquity of the temples and festivals in social networks. The third area of our research considered the problem of the synchronization clock of global integration systems and its relation to sustainable development. It is plausible from network perspective a new global calendar based on prime numbers would have its own merit. Our research is still continues in these areas but we need financial assistance to progress further.

We would also like to inform two young graduate students; one from Griffith University and one from University Sains Malaysia joined our group.

### 2. Achievement

• Paper (Title, Authors, Year, Name of the Journal, etc.)

Bahram Mojarrabi, (2013) Proposing Social Capital Exergy of the Humanitarian Hubs as an Indicator of Happiness, *World Conference on Transport Research Society, Rio-de Janeiro, selective proceedings*

• Report and book

• Seminar, symposium and special session: (Title, Date, Venue & abstract)

We refine the session F5.5 in WCTRS conference in Rio-de Janeiro on 18th of July as a cultural space in order to discuss a common position for the best practices and essential sustainability issues in a session entitled:

“Sustainable Development, Happiness and Culture of Learning – Transition from Entropy to Exergy based Capacity Building Planning Culture”. The following information were then utilized from the submitted session papers:

The interaction patterns that emerge from the individual choices will affect the collective travel behaviour and will impose a

careful choice for sustainable built environment. For example, the presence of infrastructures such as highway in the vicinity of major shopping complex reduces considerably the number of participating nodes for participation in the relevant discourses of society. The relation between the environmental attitude and travel behaviour aspects of cultural learning only spans to a limited extent compared to similarly driven interaction patterns such as family's culture of learning. Universal consultation plays an important role in behaviour change toward sustainable cultural behaviour and spread of happiness. The interaction patterns change in time and therefore the development of a feedback monitoring mechanism becomes an important consideration for regional sustainability. The metrics for the evaluation phase for each specific cluster growth project (both in subjective and objective modes) needs to calibrate with those displayed by global dynamical order for future oriented developments.

#### References

Does the built environment matter? Incorporating individual attitudes and habits in travel behaviour Giancarlos Troncoso Parady, Makoto Chikaraishi, Noboru Harata, Nobuaki Ohmori, Takami, Kiyoshi

Identification and Assessment of Transportation Performance Measures for Growth Management and Transportation Impact Assessment Applications Ruth Steiner, Lily Elefteriadou , Sivaramakrishnan Srinivasan, Patricia Tice, Kwang-Kyun Lim

Infrastructure development and citizens' concern about regional sustainability: case study of the smart-IC, TAKADA, Kazuyuki, TAKAHASHI, Sho

Expert opinions for promoting green transport in islands

POLYDOROPOULOU, Amalia; PARAVANTIS, John; PAPTAEODOROU, Andreas; KOTRIKLA, Anna; KAPROS, Serapheim; PROIOS, George; SAMBRACOS, Evangelos; TSIRIMPA, Athena; GLYPTOU Kyriaki; TZAVALI, Anna; LITINAS, Nikolaos; GOULIAS, Kostas

Disentangle Causal Direction: Environmental Attitudes and Travel Behaviour of the Vancouver Youth TSE, Cindy; ZHAO, Jinhua

Proposing Social Capital Exergy of the Humanitarian Hubs as an indicator of Happiness Bahram Mojarrabi

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•Group meeting: (Date, Venue & abstract)

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•Result of application for the research grants:(Name & result)

We succeed to secure a total of \$27500 research grants from Sachi Foundation.

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•Promotional activities of your IRG: (Homepage, Newsletter, Mailing list etc.)

Our website address is [www.scaft.info](http://www.scaft.info).

### 3. Self-evaluation of IRG (Within 300words)

International research group IRG SCAFT established as a result of the EASTS board insight in Thailand in year 2005 and the goal was to create a vibrant collaborating research group to study, identify and design different aspects of global integration transport and urban system in the belief that it would advance the implementation of the principle of Ever-Advancing Civilization and its associated culture of learning in the region, thereby accelerating the cause of East-Asian regional integration. Reviewing the work of IRG SCAFT, our group has made significant contribution to this goal, fulfilling all of our group IRG requirements and achieving all of the board expectations. We studied together and identified carefully the research priorities and goals that prove to be especially suited to each particular point of time and cultural space with regard to different aspect of our design and planning of global integration systems. We not only studied the nature of interaction topology on the emergence of dynamic coherence states as relevant to the civilization, cultural festival and the nation states, but more importantly on each of these integration fronts, we suggested the adaptive principles associated with the long range forces that will lead to emergence of key structural characteristics of scale free gradient induced flow structures. In fact this furthest advance is evident over the entire course of our cooperative research period (2005-2013) where some 14 conceptual papers, reports and thermodynamic base system model designs have been produced. This is clearly a satisfactory result and EASTS board can be very pleased of this. As stated above, for the historical contexts, the unique feature of our study was scale free interaction patterns at microscopic, mesoscopic and macroscopic levels in agreement with the framework of an Ever-Advancing Civilization and subsequent cycles of growths associated with thermodynamic necessities of Humanitarian Hubs social networks. This is a task hoping to maintain with the involvement of JICA into the future.

### 4. Do you apply for the new IRG?

No  
Not at this stage.

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