Applying the Kaizen *in Africa: A New Avenue for Industrial Development*

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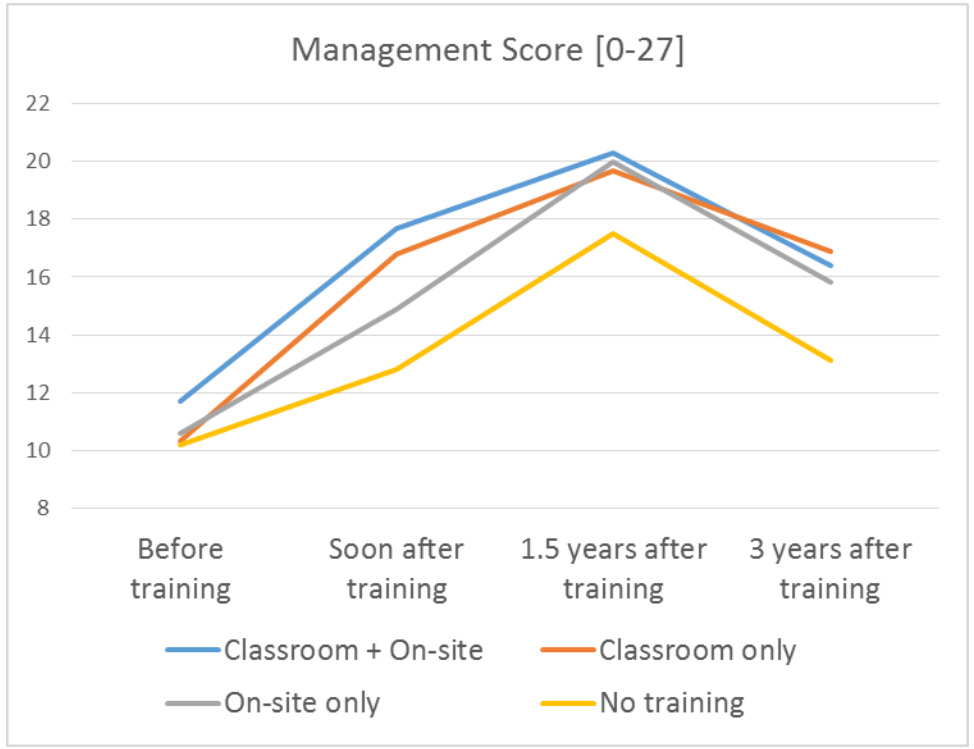
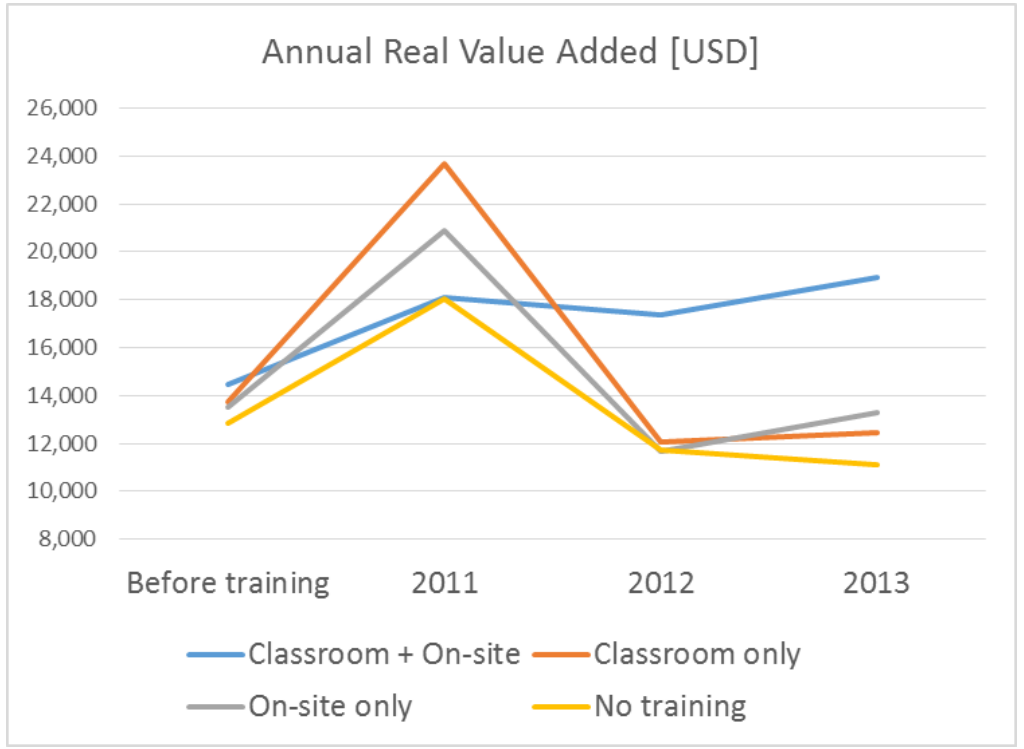
1. How *Kaizen* Brightens Africa's Future

- Definition of *Kaizen* by *Oxford English Dictionary*: a Japanese business philosophy of continuous improvement of working practices, personal efficiency, etc.
- Our Definition of *Kaizen*: *Kaizen* is management philosophy and know-how that brings about continuous, participatory, incremental, and low-budget improvements in quality, productivity, cost, delivery, safety, morale, and environment.
- Main Message: *Kaizen* is a prerequisite for substantial improvement in productivity. There is little exaggeration to argue "no industrialization without *Kaizen*," as has been proven in East Asia, USA, Europe, and also South Asia.

Through experiments, we have proven that those enterprises that received class-room and onsite *Kaizen* training have grown significantly more rapidly.





Kaizen score continues to rise for a while, even among enterprises which did not take any training, and then declined as enterprises abandon less useful management methods.

Enterprises which took both classroom training and on-site training continue to improve their performance.

2. Role of *Kaizen* in Japan's Overseas Development Cooperation

- There are many cases of technical cooperation (TC) projects by JICA to promote *Kaizen* in Asia, Latin America and Africa. Symbolic cases are in Singapore (1983-1990) and in Ethiopia (2009-on going).
- Apart from these projects, *Kaizen* tools are incorporated into various TCs such as vocational training, development of supporting industry and hospital management.
- **Institutional Arrangements**: Establishment of core organization, and strong commitment of the government to make massive campaign possible are priority issues for *Kaizen* promotion.

Table 2.2 Transfer of *Kaizen* from Japan to developing countries

	Japan		Developing countries
Public domain	JICA and the expert team ↑ ↑	⟹ TC	The organization providing business development services ↓ Training/ Consultancy Services ↓
Private domain	Companies	➡ FDIs	Companies

Source: Created by the author

- **Core Capacities** (discipline, will, attitude) need to receive due attention since they provide basis for further technical capacity development.

The *Kaizen* mind-set of people is a result of a continuous and cyclical *Kaizen* exercise of small successful experiences and self-confidence, since *Kaizen* is participatory and incremental.

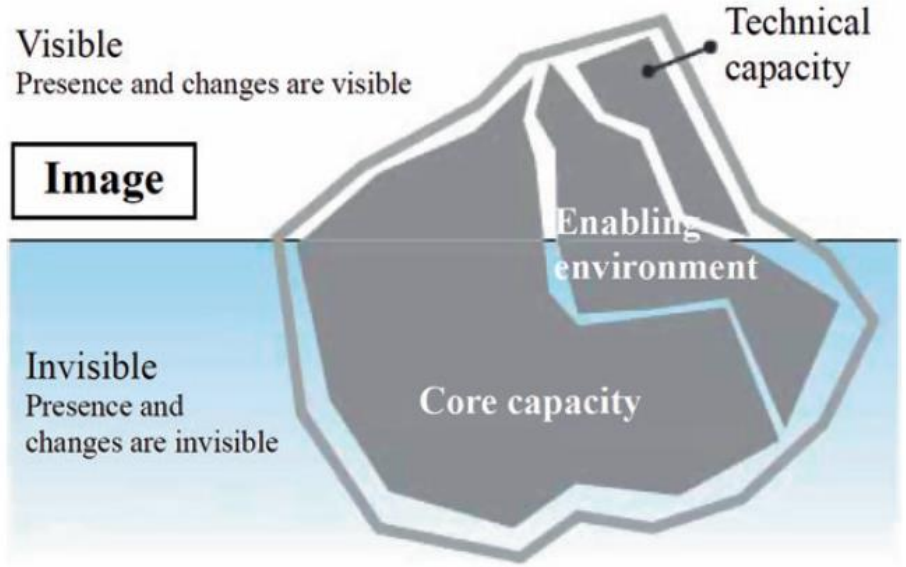


Fig. 2.1 Image of capacities. (Source: JICA Capacity Assessment Handbook (2008))

- Process of **Customizing** *Kaizen* tools and methodologies in the local context is indispensable for effective and sustainable activities such as restructuring of project in Singapore, *Kaizen* Promotion Team in Ethiopia and other cases in Slovenia and Burkina Faso.

3. *Kaizen* in Practice

- Toyota Production System (TPS), a symbol of *Kaizen* is characterized by,
  - to improve profitability, cost reduction through *muda* elimination than a higher product price for sales,
  - to reduce *muda*, minimizing inter-process and product inventory by applying pull production system based on "make what is sold" instead of "sell what is produced",
  - to reduce problem, making any problem on the production floor visible and,
  - to motivate workers, encouraging them to develop multiple skills and to present thoughts and ideas for improvement.

- TPS is opposite of Ford Production System that is characterized by mass production to seek scale merit.

Table 3.2 List of technologies frequently used for *Kaizen*

Levels		Target* of technology				
		Quality	Productivity	Cost	Delivery	Others
Advanced Kaizen		Taguchi method Experimental design Quality function deployment Reliability	TPS: JIT, Jidoka, Leveling, SMED TPM: Planed maintenance	Economic engineering NPV Target costing Activity-based costing	Decoupling point APS	
Intermediate Kaizen		TQM: Policy management, Daily management Statistical quality control Verification	Kanban Poka-yoke Cell production TOC (Theory of constraint) IE: Multiple activity analysis Autonomous maintenance OEE	Value engineering Value analysis Standard costing	Cell production MRP Pull production	Value stream mapping SWOT analysis Five forces analysis Value chain analysis Ergonomics
Basic Kaizen	Fundamental technology	Control chart Process capability index OC process chart	Process analysis Motion study, Time study Work analysis Work sampling Line balancing, Layout	Direct costing Cost accounting		
	Common** Kaizen tech.	●5S, ●7 QC tools, ●New 7 QC tools, ●Why-why analysis, ●Brain storming, ●TWI ●Visualization, ●Muda elimination, ●QC circle, ●Cross functional team, ●Suggestion system				
Meta Kaizen technology***		●PDCA, ●SDCA, ●QC Story, ●Problem solving procedure, ●Task achieving procedure ◎Project management				

* Target means purpose of each Kaizen technology.

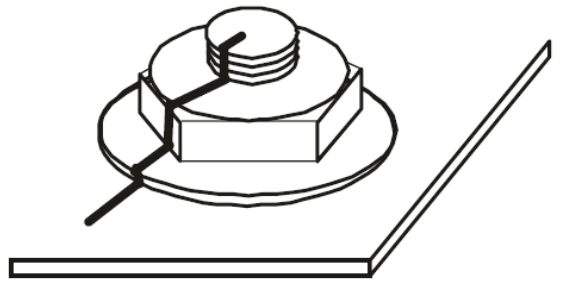
** Common Kaizen technology is one that has several targets.

*** Meta Kaizen technology means ones that apply other Kaizen technologies according to situation.

● shows essential technologies to be learnt in the basic level. ◎ shows necessary technology to be learnt in the intermediate level.

Guidelines for consultants and workers

- Immediate action is the first priority, followed by continuous *Kaizen*
- On-the-spot observation is more important than deskbound discussion
- Quality oriented by customer prioritize
- Focus on bottle neck



Loosened bolt instantly made visible with simple *Kaizen*

Guidelines for *Kaizen* management

- Once surplus manpower is generated through labor-saving by *Kaizen*, don't make the surplus workers redundant for their inferior work-related competence, but pick up excellent employees and assign to new creative job.

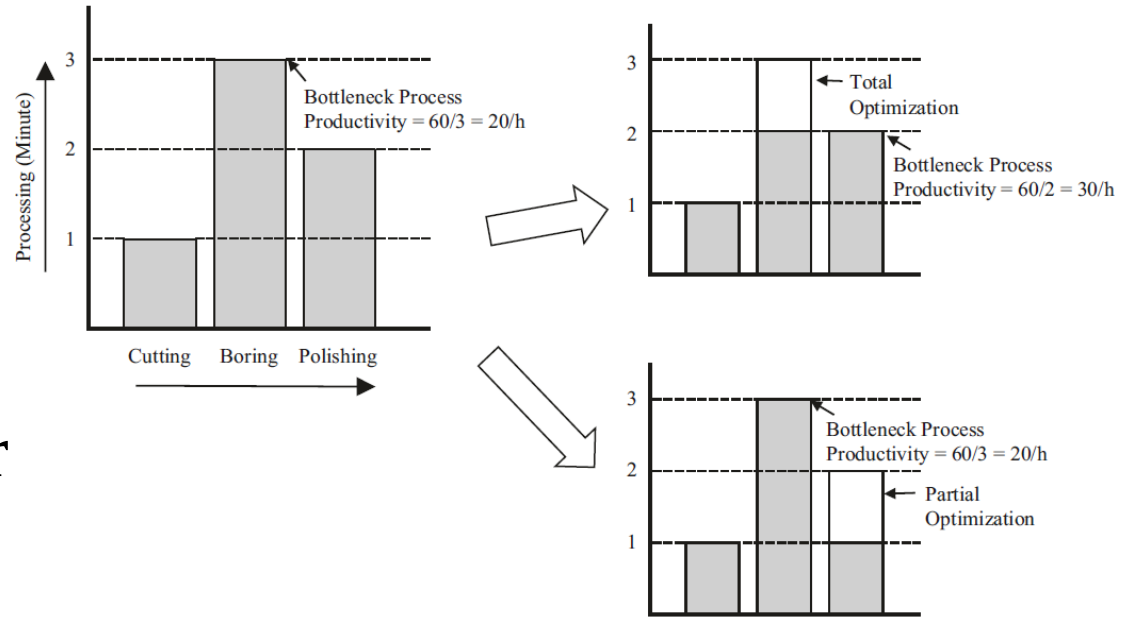
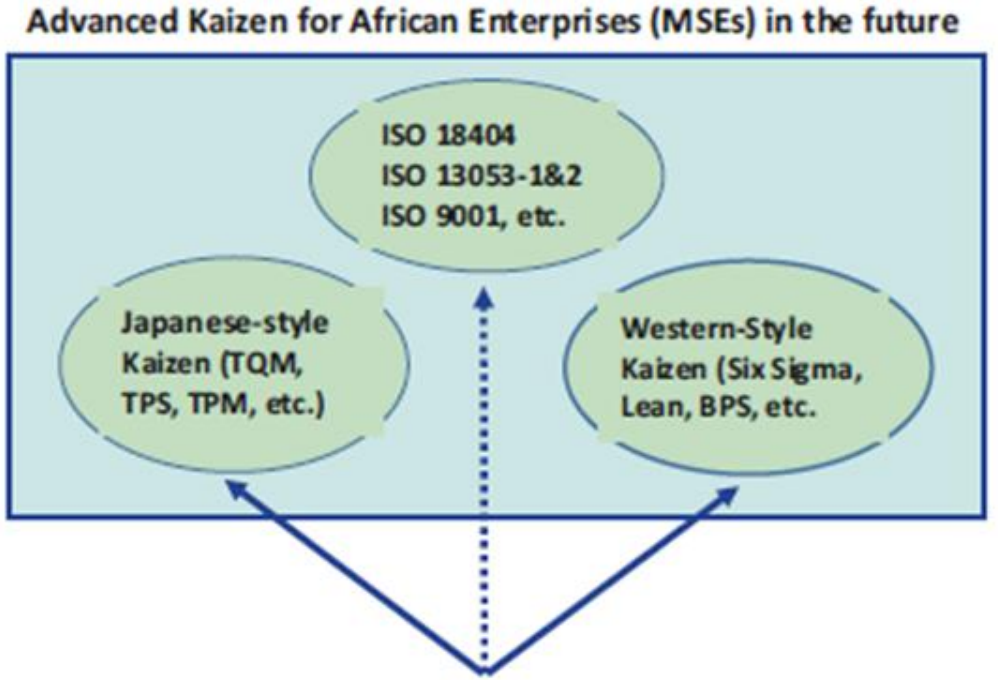


Fig. 3.5 Total optimization and partial optimization. (Source: Created by the author)

4. *Kaizen* and Standardization

- The chapter compares Western-style *Kaizen* (Lean production, Six Sigma and BPR), which is outcome oriented, radical and top-down approaches and Japanese-style *Kaizen* (TPS, TQM), which is process oriented, incremental and bottom-up approaches.
- The authors discuss that the former is fit to produce result in shorter time under dynamic labor market with high turnover while the latter is fit to workers with higher education and stronger loyalty under lifelong employment system.
- In 2015, ISO published ISO 18404 as a new international standard titled "Quantitative methods in process improvement – Six Sigma-Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation," applicable to large companies.

- For SMEs in Africa, the methodologies must be "easy to understand", "not so difficult to implement" and can "result in a short time." They also must be "inexpensive to introduce", "low risk" and "easy to train employees." That's *Kaizen*!
- JICA's *Kaizen* projects focus on basic and common tools applicable for both Western-style and Japanese-style *Kaizen*.
- Africa *Kaizen* Initiative by JICA and NEPAD promotes standardization of *Kaizen* activities to (1) fit the needs of African continent, (2) develop qualified *Kaizen* facilitators, but not standardize firm practices, (3) include current managerial skills of business, such as marketing, and (4) maintain flexibility in different economic levels of countries. The standard should be periodically reviewed.



5. *Kaizen* as a Policy Instrument: The Case of Ethiopia

The government of Ethiopia learned about *Kaizen* from Japanese Professors and JICA experts in 2008. Soon asked JICA technical assistance and the first pilot project (2009-2011) was implemented. The implementation was also supported by the high-level policy dialogue forum.

The project was successfully completed in training 10 KU members, introducing *Kaizen* in 30 companies, studying institutional frame-work to establish Ethiopian Kaizen Institute (EKI) and developing *Kaizen* manual.

The government and policy makers were convinced about the importance of *Kaizen* for development agenda and established EKI. JICA was encouraged to extend more support and launched the second project that lasted from Dec. 2011-Nov.2014. The successful completion of this project encouraged JICA to continue its assistance until 2020 (third project is ongoing and is not covered by this study).

During the second project, 51 consultants and 137 TVET ToT were trained, *Kaizen* was introduced in 51 LMEs and 129 MSEs.

EKI formulated 15 years roadmap and strategies to customize the transfer of *Kaizen* into the situation of the country. Articulated its vision ***"being a center of excellence for transformed working culture and innovation management"*** . The strategies are aligned with national development plans.

EKI developed customized training and consultancy packages in local languages. Owned basic *Kaizen* knowledge and practices and expanded *Kaizen* nation-wide. Established recognition and certification system. Developed local capacity building programs (34/ MSc and PhD on Kaizen). September was marked as a *Kaizen month* honored by Prime Minister/Ministers.

EKI staff increased from 10 in 2011 to153 in 2016 (107 consultants 46 administration workers). Its budget increased from 4.6 in 2011 to 32.5 million birr in 2016 (eight folds).

Achievements: From 2012-2016 EKI introduced Kaizen in 473 organizations, trained 68,954 management and operators and established 9,658 KPTs (QCCs). This has brought positive changes in (i) mind-set, (ii) management workers relationships, (iii) work discipline, (iv) workplace organization, etc. Improved, on average, labor productivity 1.29%-60%, machine utilization from 25%-75%. Reduced defects from 57.1%-5%, costs 6% to 33% and accidents from 49.5%-14.3%. The monetary gain was about $ 105 million (nominal).

Success factors: that can be shared to other African countries are; (i) commitment, (ii) EKI committed to Kaizen, (iii) continuous JICA assistance and effective utilization of JICA projects (EKI), (iii) promotions, (iv) customized roadmap, strategies, training and consultancy services, (v) capable consultants, and (vi) establishing systems of recognition, award and certification.

Challenges: fear of change, lack of commitment in some companies and government officials, rapid labor turnover of management and operators and lack of comprehensive understanding of Kaizen.

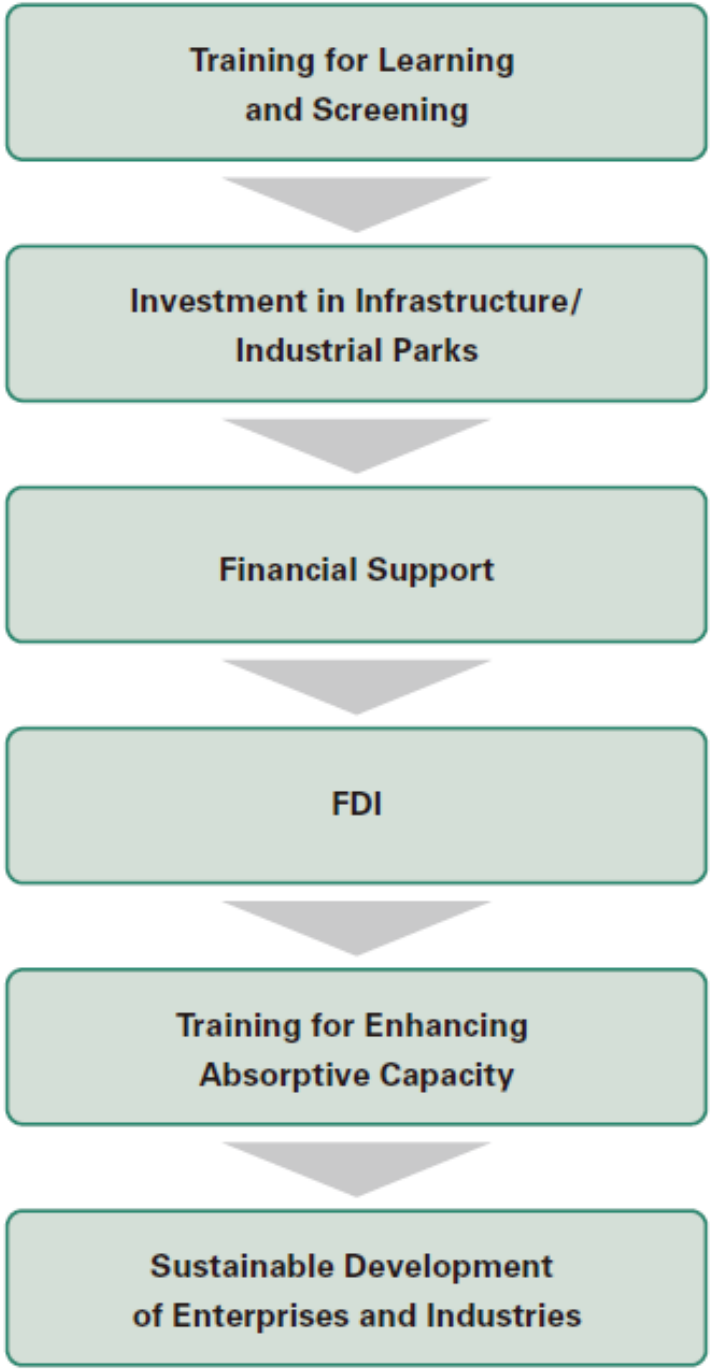
6. *Kaizen* as a Key Ingredient of Industrial Development Policy

We recognize that *Kaizen* alone cannot lead to full-fledged industrial development in Africa

1. Focus on the existing and spontaneously developed industrial clusters, which are unskilled labor intensive. Such industrial clusters have been spontaneously formed and, hence, are market-led and consistent with comparative advantage.
2. Invest in managerial human capital of entrepreneurs (owners and managers of enterprises) by Training.
3. Invest in Infrastructure, particularly the establishment of Industrial parks.
4. Financially support for competent entrepreneurs.
5. Attract FDI, as foreign enterprises bring about advanced technology and management know-how.
6. Invest in training to enhance absorptive capacity of local entrepreneurs.

We propose *sequential* support from 2 to 6 to realize industrial development.

A Recommended Sequence of Strategic Supports for Industrial Development, called TIF Strategy



IV-1. Justifications

- Private enterprises do not have strong incentives to provide training because of the labor turnover. Also entrepreneurs are known to be ignorant of the value of training. ➔ Training by governments or international organizations.
- The rate of return to investment in infrastructure, including industrial parks, is bound to be low, if there are no promising entrepreneurs. ➔ Training of entrepreneurs should precede infrastructure investment.
- Training is useful not only for improving the ability of entrepreneurs but also for screening between promising and non-promising entrepreneurs. ➔ After training, it becomes possible to provide targeted support for promising entrepreneurs.
- In order to attract and learn from FDI, further investments in human capital of entrepreneurs and workers are required so as to enhance their absorptive capacities. ➔ Advanced *Kaizen* training program.

IV-5. FDI and beyond

- **TIF** strategy is designed to invite FDI by developing supporting industries (e.g., machine repairs), enhancing availability of trained entrepreneurs and workers, and setting up industrial parks. Without them, multi-national enterprises will seldom invest in the developing countries.
- While local enterprises should learn from foreign firms, foreign firms try not to disclose management know-how.
- Thus, it is a mistake to assume that once FDI is made, domestic enterprises automatically learn advanced technology and management methods.
- Attraction of FDI is not the end of industrial policy but the beginning of a new phase of industrial development, in which management ability plays a key role.
- That is why continuous and advanced T is needed for the development of local industries in developing countries.

A Summary of Proposed Strategy for Industrial Development in SSA

- We would like to emphasize that there are many spontaneously developed industrial clusters in SSA.
- *Kaizen* is shown to be an excellent first step for development of such clustered industries.
- When enterprises which adopt *Kaizen* began growing, we should support them by allocating space in industrial parks and providing cheap loans.
- TIF strategy is designed to take advantage of complementarities among T, I, and F.
- TIF strategy is also designed to invite FDI.
- In order to learn from foreign enterprises, continuous efforts to learn through contractual relationships and advanced training programs are absolutely necessary.
- We are confident that the application of our proposed strategy will lead to successful cluster-based industrial development in SSA.

Thank you very much for your attention