Grants-In-Aid To Local Governments for the Development of Water Resources

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Grants-in-aid are fund transfers from the central government to local governments in support of specific purposes, such as the development of local infrastructures for water resources, local roads, and education. They are not tied to projects, and not subject to the normal project budgeting procedures and requirements. This paper examines recent initiatives by the Bureau of the Budget to base grants-in-aid allocations on transparent and accountable criteria with reference to socio-economic profiles drawn from the NRDC rural villages database. If more and better distributed resources are made available to local governments through grants-in-aid, which can be shown to better match local needs, it would be a move away from misplaced micro-management in the right direction, not only for budgetary practice but also for the devolution of executive authority as endorsed by the constitution.

The Thai government has recently introduced a rules-based regime for the allocation of funds to local governments. The new regime sets transparent rules for local development through local institutions funded by transfers from the central government budget. The initiative marks a shift in emphasis away from the culture of micro-management based on line-item approach by the Bureau of the Budget (BOB). Although modest in coverage and not without certain limitations in implementation, the new emphasis on local management and fiscal responsibility at provincial and sub-provincial levels supports the program of decentralizing executive power and devolving decision-making to local governments, as endorsed by the 1997 Constitution.

The money allocated from the annual budget under the new budgeting rules are grants-in-aid for specific purposes, notably for small-scale water resource developments. Such transfers from the central government substantially supplement locally-raised revenues collected at the sub-district (*tambon*) level by *Tambon* Administrative Organizations (TAOs) or their smaller counterparts the *Tambon* Councils (TCs). TAOs' and TCs' responsibilities typically span the administrative boundaries of about 10 rural villages. In 2002 there were 6,743 TAOs and 216 TCs in all of 75 *changwads* or provinces outside of the capital city of Bangkok. The median population at *tambon* level under the jurisdiction of the TAOs and TCs was about 5,600 and their median reported annual revenue was 1.67 million baht in 2000 and 2.16 million baht in 2001.

The relative levels of financial support to local governments under the new rules for grants-in-aid are determined by geography (area), by demography (population), by socio-economic indicators (water sufficiency) as established from computerized databases, and by the capacity to raise local taxes and other revenues on the part of TAOs and TCs. The main body of the pertinent socio-economic data are drawn from the National Rural Development Committee (NRDC) bi-annual village census database, from which are derived the indicators of local needs for infrastructures and provision of public services at village and *tambon* levels. To the extent that the NRDC census database and other data in the public domain are accessible and verifiable, decisions bearing on grants-in-aid to local governments from the budget are transparent and accountable. Discretionary biases normally associated with micro-management and highly centralized or politically-motivated decision-making are therefore less likely under the new rules for block grants.

LOCAL REVENUES

The capacities of local governments to raise basic revenue differ widely in Thailand and if left to rely on their own revenue resources to meet local needs the amounts available would be insufficient and unfairly distributed.

The frequency distribution of local revenues reported by local governments at *tambon* level in increments of 500,000 baht, up to 10 million baht, for the years 2000 and 2001 are shown in Figures 1a and 1b, both for the number of *tambons* (TAOs and TCs) and for the amount of reported revenue, in units of million baht, for each frequency class. The distributions are shown to be skewed with long "tails" trailing off to the right of the histograms, with proportionately very few numbers reporting very high revenues. Figures 1a and 1b show the distribution of *tambon* revenues to be highly concentrated in the frequency classes of between 1.0 and 2.0 million baht.

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Figure 1a
Frequency Distributions of the *Tambons'* Revenues and of Respective Revenue Totals
2000

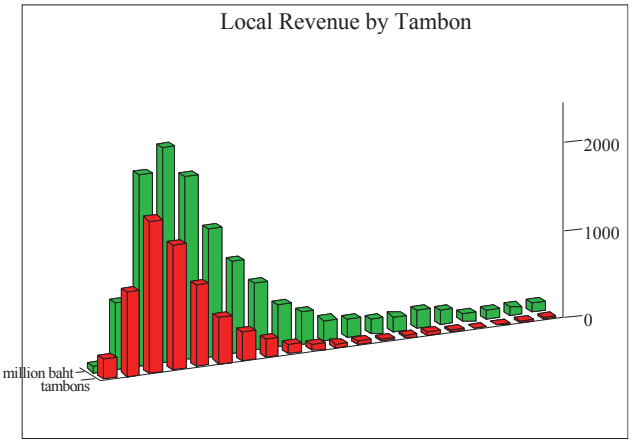
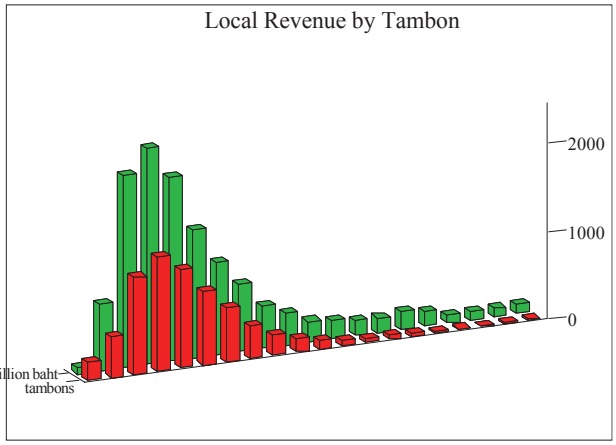


Figure 1b
2001

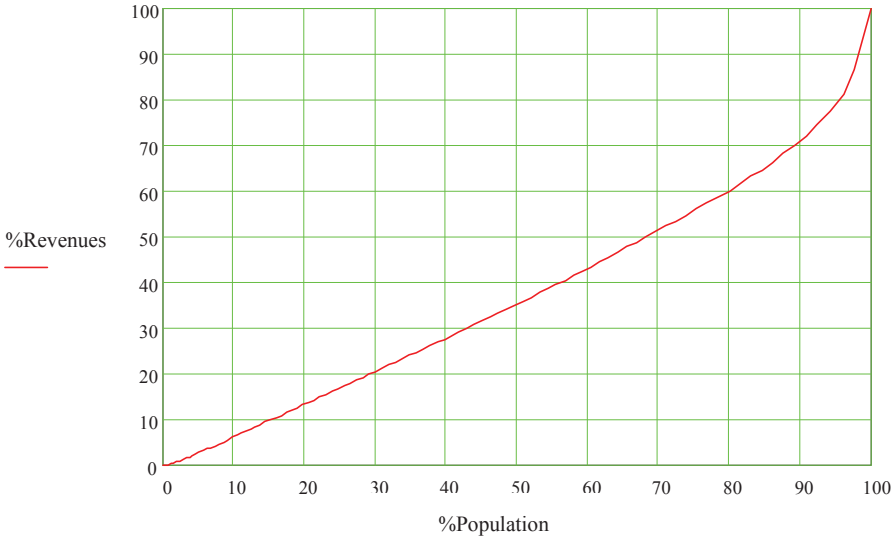


In such highly dispersed distributions the mean value statistic will differ considerably from the median statistic, at the 50th percentile, which would be a better indicator of the typical or representative value of revenue capacity. In 2000 the mean value of the *tambons'* revenues was 2.37 million baht, as against the median value of 1.67 million baht. In 2001 the mean local revenue was 3.05 million baht, as against the median value of 2.16 million baht. The standard deviation (from the mean statistic) as a measure of the standing of a *tambon* in relation to the rest, in assessing its financial need for grants-in-aid, is not a good statistical yardstick. In view of the skewed distribution of the local revenues, the uses of percentiles and the median are preferable as points of reference in determining a *tambon's* handicap for entitlement to financial support.

In 2000, the revenue class of between 1.0 to 1.5 million baht had the highest frequency of 1,728 *tambons* (25% of the total); but in 2001 the revenue class of 1.5-2.0 million baht had the highest frequency of 1,297 *tambons* (19% of the total). In both years the frequency class of 1.5-2.0 million baht showed the highest respective revenue figure, of 2,450.3 million baht in 2000 (15.0% of the total revenues of 16,310 million baht), and 3,228.2 million baht in 2001 (15.4% of the total of 20,994 million baht).

Figure 2 plots the percentages of local revenues in 2000 of 6,958 *tambons* against the percentages of their population. Reading from the vertical axis of Figure 2, half the local revenues is seen to have been collected from 68 percent of the population; but (reading from the horizontal axis) half the population is seen to have accounted for only 35 percent of the revenues.

Figure 2
***Tambons'* Revenues and Population 2000**



The application of the rules-based regime for grants-in-aid is designed to supplement the local governments' base revenues so that the total resources available for needed outlays in development are more equitably distributed. In order to parcel out the grants-in-aid budget for the development of local water resources, the Bureau of the Budget awards handicap points to each listed *tambon* on the basis of reported water sufficiency as established from the NRDC database, and to each *changwad* on the bases of population, geographical area, and combined local revenues from TAOs and TCs. The handicap points are assigned relative weights for a final tally as follows:

25% for local revenue capacity, inversely related;
35% for population, positively related;
10% for area (non-irrigated), positively related;
30% for water sufficiency (for drinking, domestic use, and agriculture), inversely related.

The total tally of handicap points represents local need indicators, which are used for deciding the proportionate allocations of the grants-in-aid from the annual budget to the 75 *changwads*.

Since data at *tambon* level are available not only for water sufficiency (from the NRDC database) but also for population, area, and revenue (from the Department of Local Administration), the local need indicators on similar bases can also be notionally compiled at *tambon* level to give a more refined picture of the distribution of needs than that of the Bureau of the Budget model which is *changwad*-based. The percentage distribution of the *tambons'* notional handicap points ("BOBTotalPoints") is shown plotted against the percentage distribution of their population in Figure 3.

For comparison Figure 3 also plots the unweighted distribution of handicap points based on revenue capacities ("RevenuePoints"), awarded as in the Bureau of the Budget's model against each *tambon's* reported revenue on the basis of deviation from the mean (no handicap point for *tambons* whose revenue exceeds one standard deviation from the mean; one handicap point for those within one standard deviation from the mean; and an extra point for those falling short of one standard deviation less than the mean).

Comparison of the two plotted lines in Figure 3 shows that at *tambon* level, half the total awarded points as assigned by the specifications of the Bureau of the Budget model go to 68 percent of the population, whereas half the unweighted revenue points go to 63 percent. The marginal increase indicates a net gain in distributional equity which results from taking into account factors other than revenue capacities. It can be concluded that the system of weights and handicap scores for factors other than for a *tambon's* revenue profile, i.e. population, area, and water sufficiency, contributes marginally but positively to a more equal distribution of the grants-in-aid.

THE DISTRIBUTION OF GRANTS-IN-AID FOR WATER RESOURCES

The amount allocated as grants-in-aid for the local development of small-scale water resources in fiscal year 2003 was 8,345 million baht. The sum represented 51 percent of the local revenues of 16,373 million baht raised at *tambon* level by TAOs and TCs in the year 2000. The final allocations as reported in the 2003 budget documents were made out in terms of the 75 *changwads* to which the TAOs and the TCs belonged and to which they were administratively subordinated. The Bureau of the Budget model gives guidelines for the allocations of grants-in-aid which make use of *tambon* variables, but their actual disposal by the *changwad* authorities are not subject to the guidelines.

Figure 3
Total Handicap Points 2003 and Handicap Points for Revenue by *Tambon*

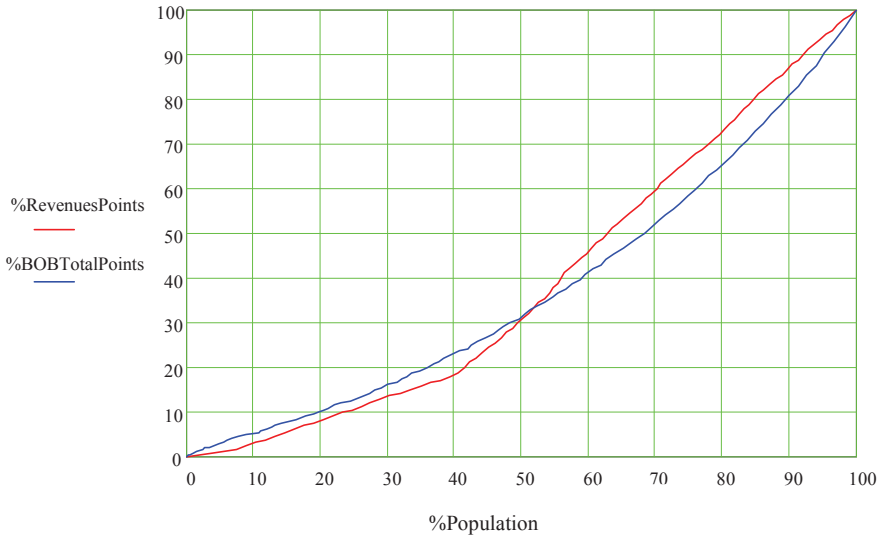


Figure 4 shows on the vertical axis the percentage distribution of basic local revenues at *changwad* level, compared to the percentage distribution of the total amounts at disposal together with the grants-in-aid for water resource development. The horizontal axis shows percentages of the population. With grants-in-aid from the central government, the percentages of the total financial resources available to the *changwads* are seen to be nearer to the diagonal and therefore more equitably distributed. Figure 4 shows that with the grants-in-aid added to local revenues, half the population receive 53 percent of the total resources made available ("TotalFinance"), as against 44 percent they would otherwise be receiving if the resources were entirely from the local revenues ("Revenues").

The comparative distributions in Figure 4 translate into the total available resources for all of the 75 *changwads* in the amount of 24,718 million baht, classified by region in Figure 5, with grants-in-aid for water resources from the central government shown in proportion to the local revenues. Proportionately to the total resources as shown in Figure 5, the north has the most grants-in-aid for water resources at 39 percent, compared to the south at 37 percent, the northeast at 36 percent, and the central region at 26 percent.

Figure 4
Distributions of Revenues, and of Revenues with Grants-in-Aid for Water, by *Changwad*

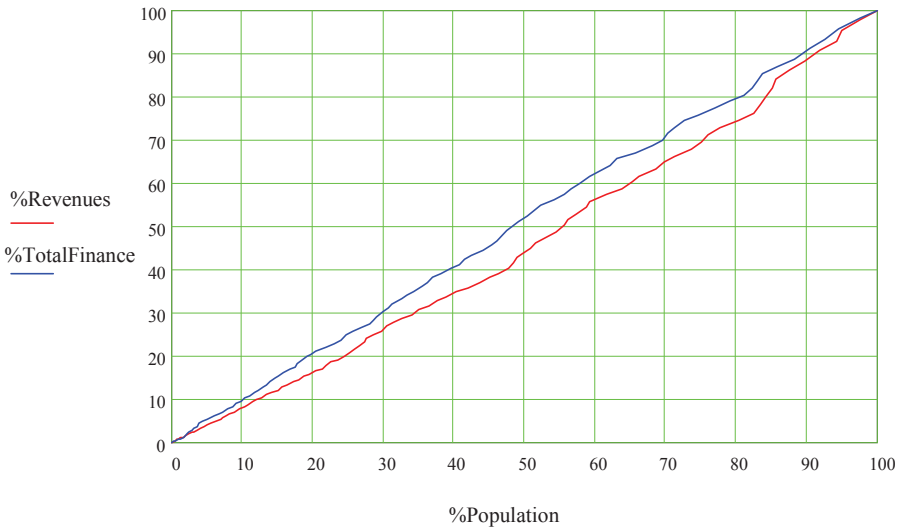
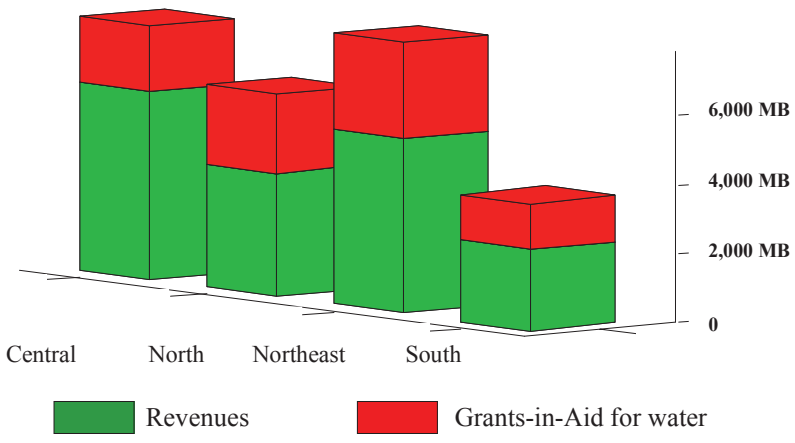
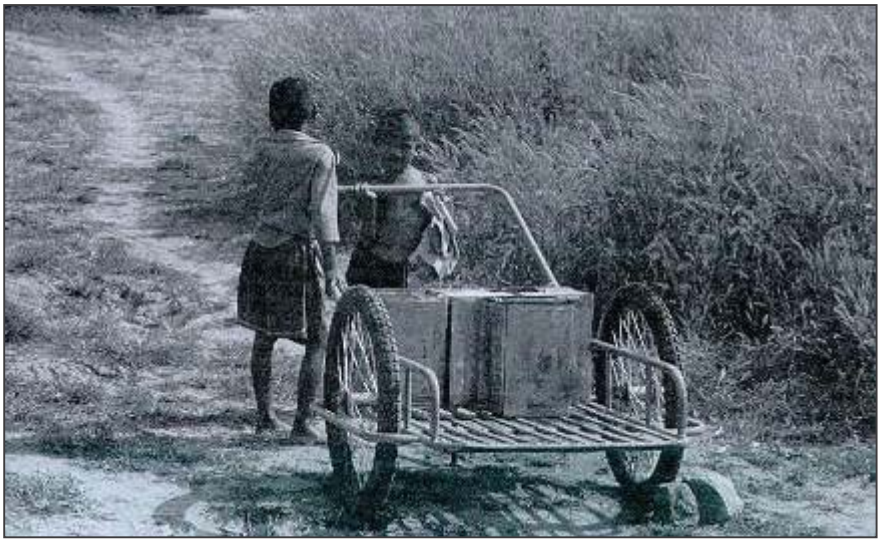


Figure 5
Local Revenues and Grants-in-Aid by Region





THE INDICATORS

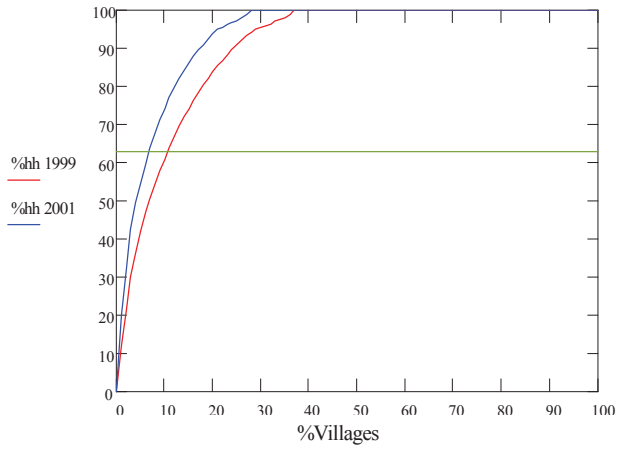
It would be reasonable that the grants-in-aid for the development of water resources should be allocated according to the relevant indicators from the NRDC database. Such indicators represent the availability and sufficiency of water for different purposes at the village level: clean drinking water, water for domestic use (general purpose), and water for agriculture. The NRDC data show that only small proportions of rural households remain in want of clean drinking water and water for domestic use. Threshold levels are defined for "sub-standard" villages in which less than 63 percent of the households have ready access to clean drinking water, and where less than 70 percent of the households have enough water for domestic use. Such problem villages are entitled to extra points in the scheme of priorities for grants-in-aid entitlements: but for drinking water they account for only 11 percent of the villages in 1999 and 7 percent in 2001; with regard to water for domestic use the "sub-standard" villages account for only 8 percent and 5 percent respectively. Figures 6a and 6b show the percentages of village households with access to clean drinking water and which have enough water for domestic use on the vertical axis, against the percentages of the villages on the horizontal axis for 1999 and 2001.

Although the NRDC indicators for adequate accesses to clean drinking water and to water for domestic use are employed as points of reference in the Bureau of the Budget's system of assigning priorities, the indicator for the adequacy of water for agriculture is not included. The "level of development" status of the village is used instead as proxy indicator for sufficiency of water for use in agriculture, with quite different outcomes. Unlike clean drinking water and water for domestic use, the adequacy of water for agriculture remains an outstanding problem in Thailand. The development status of a village does not address the problem and gives no indication of the need for water used in cropping. Figures 7a and 7b show graphically the differences between classifications of villages according to the development status index and according to criteria indicating the sufficiency of water for agriculture.

Figure 6a **Figure 6b**

Householders' Access to Water 1999 and 2001

Drinking Water
Access by Households (hh)



Water for Domestic Use
Access by Households (hh)

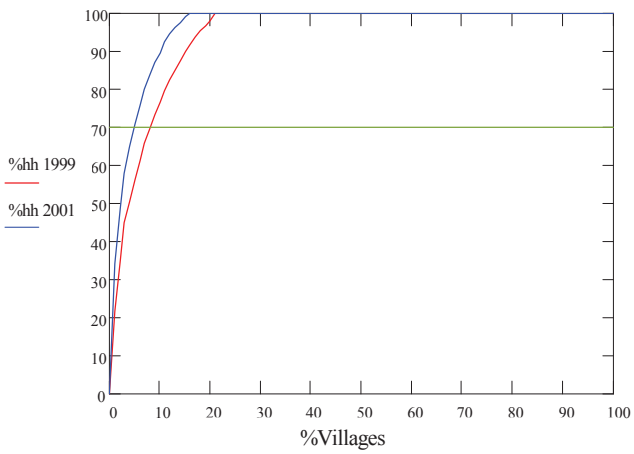


Figure 7a
Villages' Development Status Indicator and Adequacy of Water for Agriculture 1999 and 2001

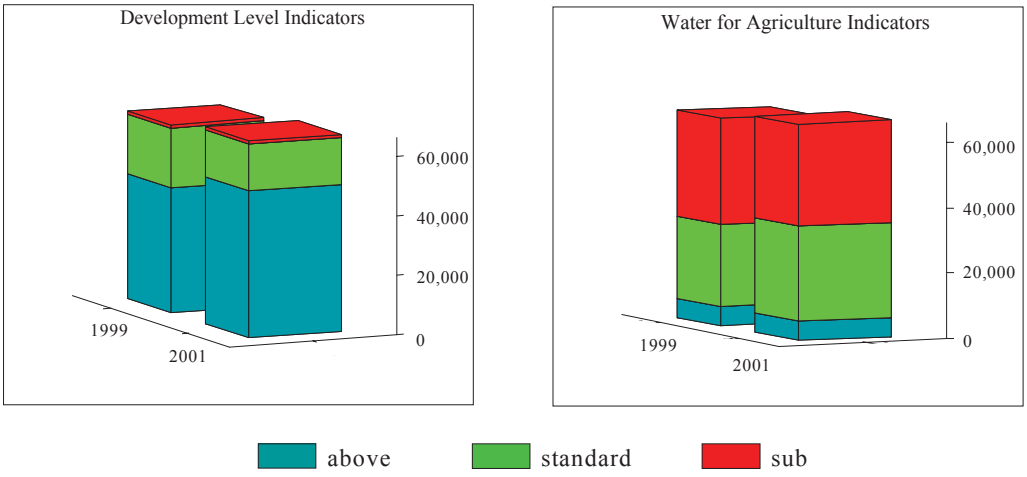


Figure 7b

Figure 7a represents the number of villages in years 1999 and 2001 which are classified in the NRDC database as being "sub-standard", "standard", or "above standard" with regard to their "level of development" status. Figure 7b shows in comparison the number of villages similarly classified for the same years with regard to the sufficiency of water for agricultural use, in accordance with NRDC's criteria.

The NRDC criteria used in defining standards of sufficiency of water for agricultural use, recorded for all rural villages numbering over 63,000 in 1999 and over 66,000 in 2001 are as follows:

Above Standard (category 3): in cases where there is dry season cropping using surface or underground water sources, or where there is double-cropping of paddy;

Standard (category 2): in cases where there is dry-season cropping using rain water or residual water in the fields, or where water is insufficient or unwanted for double-cropping of paddy or dry season cropping.

Sub-Standard (category 1): in cases where water is insufficient for double-cropping of paddy or for *any* one specified dry-season crop.

In deriving the numbers for Figure 7b from the NRDC database, there was a problem of overlapping definitions in classifying villages as "standard" or "sub-standard". This was solved by identifying the villages meeting the conditions of "above standard" and "sub-standard" criteria, leaving the residual number of villages as "standard". But it is clear that however the given definitions are interpreted, the number of villages belonging to the different standard categories that Figures 7a and 7b represent are quite different, and that the "level of development" status classifications shown in Figure 7a cannot be rightly used as proxy indicators for the sufficiency of water for agriculture as classified in Figure 7b.

The difference is of particular relevance for the way in which the Bureau of the Budget model assigns handicap points only to "sub-standard" and "standard" cases (one point for "standard" category and two points for "sub-standard"), and is significant in that no handicaps are given for cases in the "above standard" classification. Villages with category 3 indicators in the NRDC database are seen as being no problem, their relative standing recognized as being above the rest of the field. Villages classified as "above standard" in regard of their "level of development" status numbered 42,089 in the 1999 NRDC census and 49,636 in 2001, respectively 66.6 percent and 75.0 percent of the total. In contrast, villages of "above standard" classification in regard of sufficiency in water for agriculture as represented in Figure 7b numbered only 5,842 in 1999 and 5,872 in 2001, respectively 9.2 percent and 8.9 percent of the total. It is clear therefore that in using the development status indicators as proxy for the sufficiency of water for agriculture, significantly large handicap scores were withheld that would otherwise have been assigned to villages reportedly in want of water for agriculture. The loss of handicap scores in using the proxy indicators of "development status" had very real consequences for the distribution of the grants-in-aid for local water resources development. The distortion of the given scores misdirected and misplaced shares in the resources that might otherwise have been used to meet the real needs of water for agriculture.

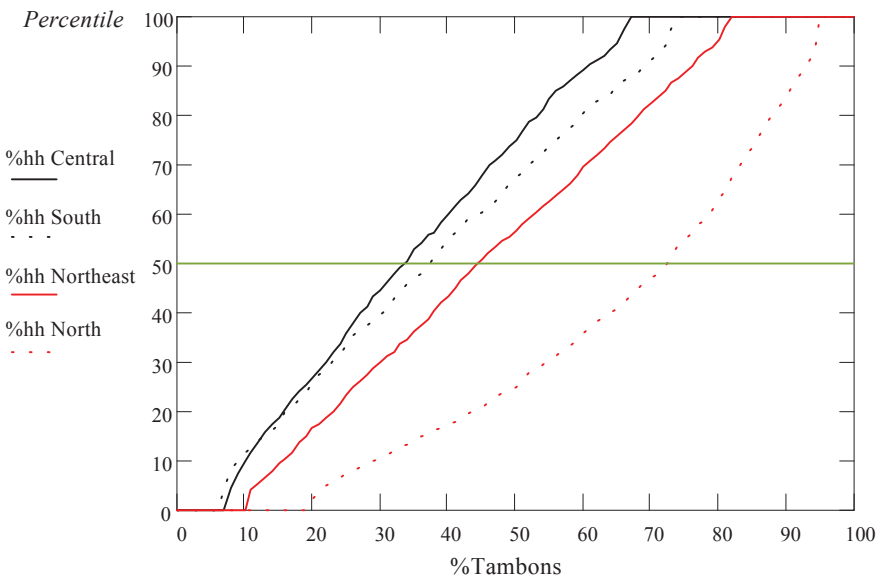
WATER FOR AGRICULTURE

The needs of the villages are shown in Figure 8, which derive from indicators of "sub-standard" villages in the NRDC database with regard to water for agriculture. The percentiles of households in *tambons* with such villages are plotted on the vertical axis against the percentages of all *tambons* in the NRDC database for 2001, classified by region.

Figure 8 shows that the deficiency of water for agriculture is a problem of quite different order of magnitude from the deficiencies of clean drinking water or water for domestic use. In relative terms the north is the most deficient in water for agriculture. The percentile schedule for the north region in Figure 8 is furthest to the right. About 20 percent of its *tambons* have satellite villages all in the "sub-standard" (category 1) classification and their households are entirely in want of enough water for agriculture. The sufficiency rating is zero for these 20 percent of the north's *tambons*, compared to about 10 percent for the northeast, 7 percent for the central region and 6 percent for the south. For the north, 73 percent of its *tambons* have a mix of "sub-standard" villages whose households account for half of the total number within the respective *tambons*, equivalent to a sufficiency rating of 50 percent. The northeast schedule shows that on similar basis the region has about 45 percent of its *tambons* with 50 percent sufficiency rating. The problem is the least severe in the central region, with about 34 percent of the *tambons* at 50 percent sufficiency rating, and whose schedule is furthest to the left at the 50th percentile marker in Figure 8.

It is clear that the problem of adequacy of water supply for agriculture is far from having been resolved, unlike the residual problems of adequate clean drinking water and water for domestic use. In the Bureau of the Budget's system of handicap scores for the local governments' shares of grants-in-aid for water resources, the deficiency of water for use in agriculture deserves to be directly dealt with. It is a missing crucial variable in the ongoing process of devolved decision-making which requires matching resources to the local needs. The outstanding want of water for agriculture should be recognized and directly and transparently addressed, with the necessary budgetary resources made available and redirected as needed in a re-design of the present system.

Figure 8
Percentiles of *Tambons'* Households (%hh) with Adequate Water for Agriculture by Region in 2001



CONCLUSIONS

The initiatives by the Bureau of the Budget set new standards of transparency and accountability in budgeting for local development and the provision of block grants. The budgeting guidelines for grants-in-aid assign priorities by handicap scores and systematic use of the NRDC database as an instrument for fair allocation and redistribution of resources. The data transparently identify needs at the grassroot level. But the current design of the system puts emphasis on how the given resources are proportionately shared out, rather than to budget for the pertinent and necessary amounts of funding to make an impact on problems.

The handicap scores derive from NRDC indicators ranking the severity of a local problem, and from local deviation from the statistical mean of certain chosen variables - populations, areas, and revenues. But the use of percentiles (or deciles or quartiles) is recommended as statistically preferable to the use of standard deviations to ascertain the severity of a local problem in relation to the rest of the population.

In assigning priorites for grants-in-aid for the development of local water resources, the system has not addressed the deficiency of water for agriculture, which is a problem quite different to the residual issues of clean drinking water and water for domestic use. The use of an unsuitable proxy indicator distorts the allocation of resources and the entitlements of local communities in need of water for growing crops. A refinement of the system will also need to incorporate follow-up and monitoring measures, to ensure that the block grants to the 75 *changwads* are in fact redistributed down to the subordinate *tambons* and villages on similar allocation guidelines and similar indicators of local wants.

REFERENCES

1 กรมการพัฒนาชุมชน. ข้อมูลพื้นฐานระดับหมู่บ้าน กชช 2 ค. ปี 2542 (Community Development Department. National Rural Development Committee (NRDC) Village Census Data1999). กรุงเทพฯ : กรมการพัฒนาชุมชน.

2 _____. ข้อมูลพื้นฐานระดับหมู่บ้าน กชช 2 ค. ปี 2544 (Community Development Department. National Rural Development Committee (NRDC) Village Census Data 2001). กรุงเทพฯ : กรมการพัฒนาชุมชน.

3 กรมการปกครอง. กองราชการส่วนตำบล. 2544. ข้อมูลสภาตำบลและองค์การบริหารส่วนตำบล ประจำปี 2544 (Department of Local Administration. *Tambon* Affairs Division. *Tambon* Council and *Tambon* Administrative Organization Annual Statistics 2001). กรุงเทพฯ : กองราชการส่วนตำบล.

4 _____. 2545. ข้อมูลสภาตำบลและองค์การบริหารส่วนตำบล (อบต.) ประจำปี 2545 (Department of Local Administration. *Tambon* Affairs Division. *Tambon* Council and *Tambon* Administrative Organization Annual Statistics 2002). กรุงเทพฯ : กองราชการส่วนตำบล.

5 สำนักงบประมาณ. หลักเกณฑ์ในการจัดสรรงบประมาณจังหวัด ปีงบประมาณ 2546 (The Bureau of the Budget. Budgeting Guidelines for Grants-in-Aid to *Changwads* 2003). กรุงเทพฯ : สำนักงบประมาณ. (เอกสารอัดสำเนา)