

Kusakabe Revisited: The Demise of a Village Community in the Tamba Uplands (II)

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This is the second part of a study of severe rural depopulation (*Kaso-ka*) in a broad community of 51 villages in the Kanbayashi Valley, in the Tamba Upland region of Kyoto Prefecture. Having viewed the mechanism of population change in one of these villages, Kusakabe, in considerable detail, this paper focuses attention on the neighbouring villages in the valley to assess how widespread is the threat of complete village abandonment caused by severe population loss.

Key Words : Rural Depopulation, Micro-level Village Community Studies, Rural Policy

The Kanbayashi Valley

The aim of this study is to place Kusakabe, a severely depopulating village community described in part I of this paper (Journal of Policy Studies, No. 22, pp57-66), in the context of social and demographic change occurring in fifty neighbouring settlements which share the same valley environment. This valley is the Kanbayashi-gawa, located in Ayabe City in the northern part of the Tamba uplands of Kyoto Prefecture. From its source near the border with Fukui prefecture to its confluence with the larger Yura-gawa the river cuts a relatively straight 30 kilometer, south-westerly course through the hills (Fig. 1).

The valley is broad enough to allow rice paddy cultivation along most of its length, and its well defined character made it a strategically important routeway in the past, connecting the ancient Kinai Province surrounding Kyoto with Hokuriku-do Province along the Japan Sea coast. In the Warring States period of the 15th and 16th centuries the valley was considered important enough to warrant the construction of two substantial fortresses – one over-looking the confluence with the Yura River at Yamaga, and the other in the centre of the valley atop a small hill next to Ishibashi village. Both

castles were dismantled around 1615, following the establishment of absolute rule by the Tokugawa Shogunate. The villages close to Ishibashi still reflect the feel of an early castle-town, however, and some maintain place names like ‘Baba’ (a training ground for mounted warriors), ‘Teramachi’ (the temple district), and ‘Tono’ (an office and/or residence for a high ranking official). Even today this area still has the highest concentration of rural settlements in the valley, and the importance of the routeway the castle once protected is reflected in the fact it is designated Prefectural Highway Route 1 (P1).

Route 1 (P1) follows the line of the river, only twice ‘short-cutting’ a stream meander. About three-quarters of the 51 village communities in the Kanbayashi Valley are located on or immediately alongside this road. A major tributary, which joins half way down the valley, is followed part of the way by Prefectural Route 51 (P51), before it climbs steeply over the watershed to connect with Maizuru, the second city of Kyoto Prefecture (a tunnel constructed to improve this road link was completed early in 2007). A total of seven of the Kanbayashi communities lie alongside this road, or along the further reaches of the tributary. Other, more isolated, settlements are found along the course

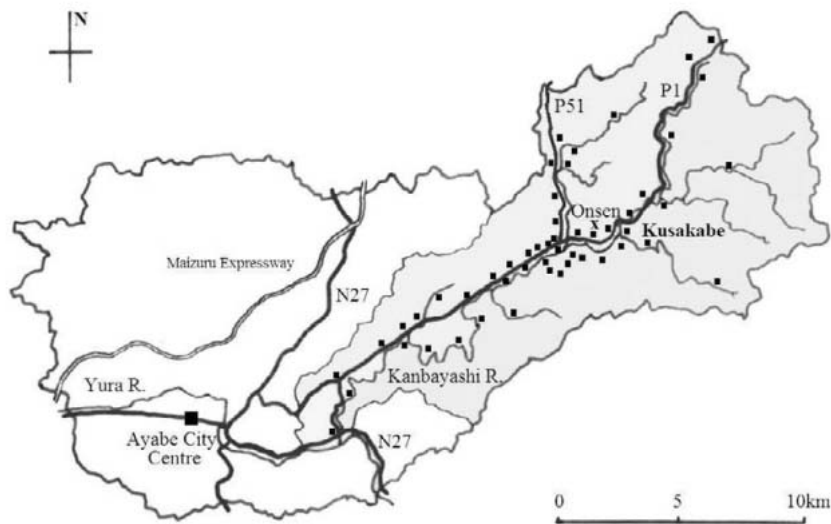


Figure 1. Map of Ayabe-shi showing the location of 51 village communities in the Kanbayashi Valley

of much smaller tributaries, often high up the main valley hill-sides. Kusakabe is approximately 21 kilometers from the Yura-gawa confluence, in a small but relatively broad tributary valley, about one kilometer from Route 1.

In the immediate post-war years the present Ayabe-shi had comprised thirteen autonomous administrative districts (*kyushichoson*), seven of which were amalgamated in 1950 to create the nascent Ayabe City. A second round of amalgamation took place in 1955, bringing five more administrative ‘villages’ under the umbrella of Ayabe, with the sixth and final ‘village’ joining the process in 1956. No further amalgamation (*gappei*) is planned at the present time. The Kanbayashi Valley is divided into three former ‘village’ administrations. Furthest from Ayabe City centre is Oku-Kanbayashi, then Naka-Kanbayashi, and Kuchi-Kanbayashi (*Oku* means ‘far’, *Naka* means ‘in the middle’, and *Kuchi* means ‘at the mouth of’ – so the naming is really self-evident). A complication arises with the fact that each of these former administrative districts is made up of a number of morphologically independent settlements (*shuraku*) which in English are also normally referred to as villages, or possibly hamlets. This latter interpretation is implied when the word “village” is referred to hereafter in this paper. In total, Oku-Kanbayashi is made up of 15 such village communities; there are 25 in Naka-Kanbayashi; and eight in Kuchi-Kanbayashi. Another problem is that the boundary of Kuchi-Kanbayashi does not

quite extend to the confluence with the Yura River and that a further three settlements lie alongside Route 1 as far as this point. Geographically it makes sense to include them in this study, even though they form only a part of the neighbouring district called Yamaga. Thus, 51 village communities are identified as belonging to the Kanbayashi Valley.

Village Statistics

Annual population and household totals for each of the Kanbayashi villages are taken from the monthly population summaries issued by the City Office, based on information contained in the Basic Residential Register (*Kihon Jumin Daicho*). End of September figures are chosen as the most suitably representative for each year, since this is the month when population in Japan is considered to be most stable, particularly in respect of migration. For the same reason the quinquennial National Population Census is always conducted at this time of year. In the case of Kusakabe population records taken directly from the Basic Residential Register have been made available from the early 1960s, but this is not the case with all other villages in the Kanbayashi Valley. Published monthly summaries are only available after 1987, so for the sake of direct comparison population change rates for all village communities (including Kusakabe) will be based on this data source. The Kusakabe study ended with data for 2005, so in the initial phase of the current survey average annual population change rates are

calculated for the eighteen year period between September 30th 1987 and the same day in 2005.

In most circumstances, including studies at the inter-municipal and prefectural levels, it would seem a simple enough task to compare population levels in 1987 and 2005, and so deduce the average annual rate of change. However, the populations of communities being dealt with here are all 'small', and some are 'very small'. Small populations require special consideration, because the interpretation of change rates can vary according to the size of each community. For example, the loss of two people in a village of 100 represents a loss of two per cent. The loss of two people in a village of just 10 people, on the other hand, represents a catastrophic decline of twenty per cent. Assuming the two communities share a broadly similar rate of change, as measured over time, the smaller village will experience a few years of no adjustment to population totals, while the larger village continues to lose one, two, or three or more people each year. When picking the arbitrary dates of 1987 and 2005 over which to measure population change there is always the risk of having chosen one or two 'event' years, and the contingent possibility of grossly distorting actual rates of change. To overcome this, the scatter of population totals which appear on a graph for each of the nineteen years of data observations can be averaged by overlaying a linear 'line of best fit'. Population change rates are then calculated on the basis of figures indicated by this line for the years in

question. As an illustration of this technique Figure 2 presents the raw data and the line of best fit for Ishibashi – a village near the site of the former castle in the central section of the valley.

Despite the reservation of working with 'small' population totals, one of the most startling findings of this research is that population change rates are extremely consistent for the great majority of settlements. The level of consistency can be measured by calculating the R-squared value for each 'line of best fit'. Here, the R-squared value is used as a simple descriptive device, and not as an indicator of the strength of any perceived or supposed relationship. A high value, of 0.8 or 0.9, suggests that annual population totals vary only very slightly from the 'line of best fit', whereas a value close to zero suggests a random scatter around that line. (Ishibashi, for example, has a value of 0.82). In this study, just under three-quarters of all villages display an R-squared value of 0.8 or above. The R-squared values for each of the 51 village communities in the Kanbayashi Valley are shown in Table 1, together with average annual rates of population change based on observations from the lines of best fit.

The order of listing of settlements in Table 1 is based on the listings of population totals provided by the City Office. Settlements are grouped into *kyushichoson*, or administrative territories prior to amalgamation into the present-day Ayabe-shi, with the furthest group from Ayabe town centre listed

Figure 2. Population Change in Ishibashi Village, 1987-2005

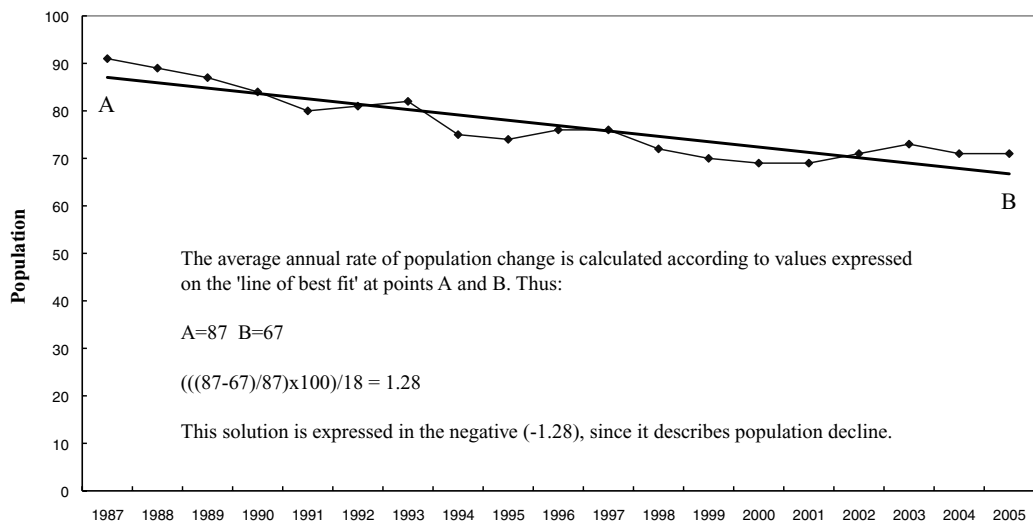


Table 1. Kanbayashi Valley: Village Statistics

	1987 Total h'holds	2005 Total h'holds	1987 Pop'n	2005 Pop'n	Average annual rate of pop'n change*	R-squared**	Index of Isolation
Oku-Kanbayashi							
Ichikaya	10	6	28	12	-3.26	0.85	4
Ogarachi	19	17	49	28	-2.25	0.79	4
Tochi	13	12	42	24	-2.25	0.98	3
Kowagi	55	41	131	76	-2.65	0.96	5
Mitsuno	31	24	75	43	-2.17	0.91	3
Koya	8	6	13	7	-2.22	0.73	6
Yajiro	23	18	77	43	-2.49	0.98	3
Konaka	35	33	110	90	-0.87	0.89	2
Kawara	17	14	45	38	-0.93	0.69	2
Ariyasu	55	48	151	93	-1.99	0.99	2
Kusakabe	32	26	87	55	-1.96	0.92	3
Torigaki	23	26	76	81	1.02	0.67	2
Shikoda	18	17	42	33	-1.6	0.83	3
Yamauchi	23	23	58	53	-1.18	0.42	1
Nagano	22	19	66	39	-2.5	0.92	1
Naka-Kanbayashi							
Ichishi	19	16	42	23	-2.31	0.94	5
Mizunashi	17	17	63	34	-2.61	0.92	4
Ichinose	31	25	91	58	-1.71	0.95	4
Nushi	23	21	81	62	-1.36	0.77	3
Tsuji	17	16	58	45	-1.26	0.9	2
Shimizu	36	27	105	54	-2.83	0.96	2
Yuri	42	35	141	104	-1.45	0.92	2
Yuge	27	26	83	69	-1.36	0.83	3
Oomachi	49	47	136	94	-1.42	0.86	1
Shiodani	11	9	24	15	-2.36	0.86	3
Yamada	13	14	42	28	-2.1	0.85	3
Takehara	17	16	69	41	-1.88	0.81	3
Katayama	23	26	89	76	-0.57	0.47	1
Tono	20	16	59	40	-1.88	0.91	1
Baba	21	19	66	40	-2.26	0.97	2
Ishibashi	27	22	91	71	-1.28	0.82	2
Hikidani	28	25	97	68	-1.21	0.78	1
Teramachi	26	20	66	43	-2.14	0.94	1
Azura	21	20	65	37	-2.78	0.94	3
Kodani	16	14	48	31	-1.65	0.81	1
Nishiya	23	20	70	59	-0.77	0.65	1
Hikiji	34	31	88	68	-1.5	0.79	1
Oda	24	26	86	59	-2.09	0.87	1
Mano	27	27	103	88	-0.99	0.83	1
Daiichiku	64	62	202	151	-1.36	0.9	1
Kuchi-Kanbayashi							
Tadacho	40	43	152	119	-1.31	0.83	3
Tsukudacho	56	45	173	115	-1.7	0.98	4
Takeyoshicho	60	57	181	136	-1.33	0.82	3
Inecho	32	29	102	73	-1.29	0.83	3
Tokura Nabatacho	48	56	165	151	-0.49	0.43	2
Tokura Mukocho	26	27	86	74	-0.61	0.46	1
Tokura Nakacho	32	26	74	68	-0.38	0.3	1
Tokura Shimocho	41	41	114	99	-0.05	0.0038	1
Yamaga							
Asahicho	40	41	129	91	-1.78	0.96	1
Hashiuecho	23	21	77	55	-2.1	0.91	2
Higashiyamacho	104	102	336	281	-0.81	0.88	1
AVERAGE	30.24	27.75	92.24	67.35			

* Derived from 'line of best fit' (see Fig. 2)

** Also refers to 'line of best fit'

first, then the next, and so on. Oddly, the City Office listings of villages *within* each district are ordered in a reverse pattern. That is, within each grouping settlements are ranked in terms of proximity to the City Office, with the nearest being listed first. Possibly this is due to mere administrative convenience reflecting, perhaps, the natural sequence of head-counting adopted by census enumerators. In this study, this discrepancy has been corrected by not just reversing the ordering of communities, but by taking note of actual distance away from the City Office. In general, therefore, the list of settlements in Table 1 is ordered in terms of remoteness from Ayabe City Office, although the integrity of each *kyushichoson* grouping has been preserved.

This consideration of distance is a significant one since accessibility to urban functions or, properly, lack of it, has long been recognized as a major factor explaining variations in the severity of rural population decline (Adachi, 1973; Irving, 1984). The notion of remoteness of a place (*hekichi*) does not only involve simple map measurements to the nearest central place, however. Location alongside the main road, and with easy access to public transportation, for example, may help reduce feelings of remoteness even though the actual distance to the local city centre may be further than that from other communities. Conversely, some village communities which are relatively close to the central place, but which are isolated from the main road because of location near the end of a small tributary valley may have an enhanced sense of remoteness. This is particularly so if, commonly, there are no local, permanent shop or other service facilities, and if the main Kanbayashi Valley cannot even be seen. Probably, the feeling of greatest isolation is experienced at Koya, which is located in the same tributary valley as Kusakabe. High in the foothills, and where the valley sides steepen to such an extent that rice farming is not a realistic option, the village is a 40-50 minute walk from Kusakabe along a narrow road frequently cut by landslides. There is no public transportation service although, as with all 51 communities, Koya is served by a weekly mobile shop delivery operated by the local agricultural co-operative. When a fire broke out in one of the households a few years ago, however, it simply took too long for even the local volunteer fire service to arrive in time to save the house. The elderly occupants were safe, but decided to take this opportunity to leave the village for good. By September 2005 only seven people were left in the village, the youngest aged in his mid-fifties. In early

2009 this number was reduced to six when an elderly widow left to live with her son in the city.

In order to provide a sense of the relative degree of isolation felt in each village community an 'index of isolation' has been devised, represented on a scale of 1 to 6. Koya, the village just described, is given the maximum score of 6, reflecting the greatest degree of isolation (Table 1). Two other communities, Kowagi and Ichishi, are in similarly remote locations, but in both cases their local valley environments are sufficiently broad and sunny to allow rice cultivation. There is not the sense of being 'hidden away', therefore, as is the case with Koya, and so both score 5 on the index. Five villages have an index score of 4, reflecting the fact that they are also located at or near the outermost points of the dendritic Kanbayashi River network (and are thus among the most isolated from Ayabe), but they are no more than a short walk (within 10 minutes) away from one of the main roads (ie. P1 and P51). Fourteen villages have a score of 3, including Kusakabe. This value reflects the fact that whilst one or more neighbouring villages are in sight, the distance to the main road may require a walk of between 10 and 30 minutes. Though not entirely isolated, these villages are still near the periphery of the network. The eleven villages with a value of 2 are either: on one of the main roads, but are beyond the area served by the regular public transportation network, or; are within a 10 minute walk from the nearest bus stop. The eighteen villages with an index value of 1 are all on the main road, and are served by the more regular bus service which runs between Ayabe JR station and Ayabe Onsen. No distinction is made according to distance from Ayabe station although in reality the bus journey time is about 20-25 minutes longer for residents of Yamauchi, nearest the onsen (hot spring resort), than for those of Higashiyana, nearest to the confluence of the Kanbayashi and Yura Rivers.

Clearly the index is prone to some degree of subjectivity although as far as possible purely objective considerations are taken into account. Timings of walking distance, for example, are based on personal experience (I am in my fifties, and have long legs), and so these measures cannot possibly reflect all perceptions of distance and all degrees of feeling of isolation. It is, after all, a merely descriptive device, and the scale is nominal rather than ratio. It cannot be inferred, therefore, that Koya (6) is twice as isolated as Kusakabe (3). It *can* be said that Koya has a considerably greater feeling of

isolation than its nearest neighbour, Kusakabe, which in turn has a greater feel of isolation than its near neighbours, Ariyasu (2), Torigaki (2), and Yamauchi (1).

In 2005 Ayabe City officials recognized the need for better access to village community demographic data in order to analyse more effectively the situation regarding severe rural depopulation. In this respect they have shown themselves to be one of the more enlightened local authorities, not just in the Tamba region but in the much wider context of rural Japan as a whole. Since April that year, the City Office has published a bi-annual list of population for each village community (*jichikai*) broken down by sex and *one-year* age groupings. September 30th each year is one of the dates selected for this publication. This means that Kusakabe can now be compared to other villages in the Kanbayashi valley with a greatly enhanced level of sophistication. Rather than a mere comparison of population change rates, the population structures of each community can now be studied in detail, and increments and disappearances to and from population totals detected at the individual level. The vital causes for such changes – birth, death, and migration – are not described of course, but they can be inferred in most cases. In the latter section of this study, therefore, the dynamics of population change over the years 2005-2008 will be explored, for Kusakabe *and* all the other fifty village communities in the Kanbayashi Valley.

Kusakabe compared to other villages in the Kanbayashi Valley

Although each and every village in the Kanbayashi Valley can boast a uniquely distinctive character, the question of how well Kusakabe can be said to represent the whole valley has to be asked. Perhaps the best answer is that Kusakabe is by no means unrepresentative. In 1987 there were 32 households in Kusakabe, compared to an average village size for Kanbayashi of 30.24 households (Table 1). Population in that year was 87 compared to the average of 92.24. The broad pattern of settlement size in the Kanbayashi Valley is that villages further away from the centre of Ayabe tend to be smaller than those closer to the centre. The 1987 average number of households for villages in the two districts at the upper end of the valley (Oku- and Naka-Kanbayashi) was just over 25, compared to just over 50 per village in Kuchi-Kanbayashi and Yamaga. Kusakabe was close to the average for the whole Kanbayashi Valley at that time, and ranked

fourth (out of 15) on both household and population indicators for the Oku-Kanbayashi district. It was quite a large settlement in terms of its local situation, therefore, but by no means excessively so, and certainly not so when placed in the context of the whole valley.

This description of the ‘representativeness’ of Kusakabe had changed only slightly by 2005. The number of households in the village had fallen to 26 compared to an average for the other communities in Kanbayashi of 27.75. Population had fallen to 55, on the other hand, compared to 67.35 for the valley as a whole. These figures suggest that the rate of population (and household) decline in Kusakabe was faster than average for this period, perhaps especially so if it is considered that its population was just under 160 in the early 1960s (Irving, 2006). A glance at the pattern for overall population change in the Kanbayashi Valley from 1920 to 2005 backs up this observation revealing that, in recent years, the pace of decline in Kuchi-Kanbayashi has been slower than for its more remote neighbours – Naka- and Oku-Kanbayashi (Fig. 3). Placing all of this in the wider context of change after 1920, however, serves as a remainder of the severity of the rural exodus as it occurred in all parts of the Japanese countryside. Following a short period of post-war population recovery, fuelled by armed forces repatriation and baby-boom, all parts of the Kanbayashi Valley suffered sustained depopulation after 1955, being particularly severe in the years 1955-1970. Whatever detailed examination of the changing demographics of Kusakabe after 1961 reveals, as well as for the other fifty villages in Kanbayashi after 1987, *all* villages in the valley clearly share the experience of the *kaso* phenomenon which has had such a severe impact on Japan’s rural area since the early/mid 1950s.

Population change in 51 village communities in the Kanbayashi Valley, 1987-2005

Notwithstanding the shared impact of the rural exodus, differences in population decline rates averaged over the past twenty years or so are still very evident at the village community level. Average annual population change rates for the period 1987-2005 are presented in Table 1, and represented visually in Figure 4. The most startling finding is that 50 out of the 51 villages suffered population decline in this period, with the highest rate (Ichikaya) a disastrous -3.26% per annum. (A rate of decline of 2% or more each year is officially considered

Figure 3. Population Change in Major Districts of the Kanbayashi Valley, 1920-2005

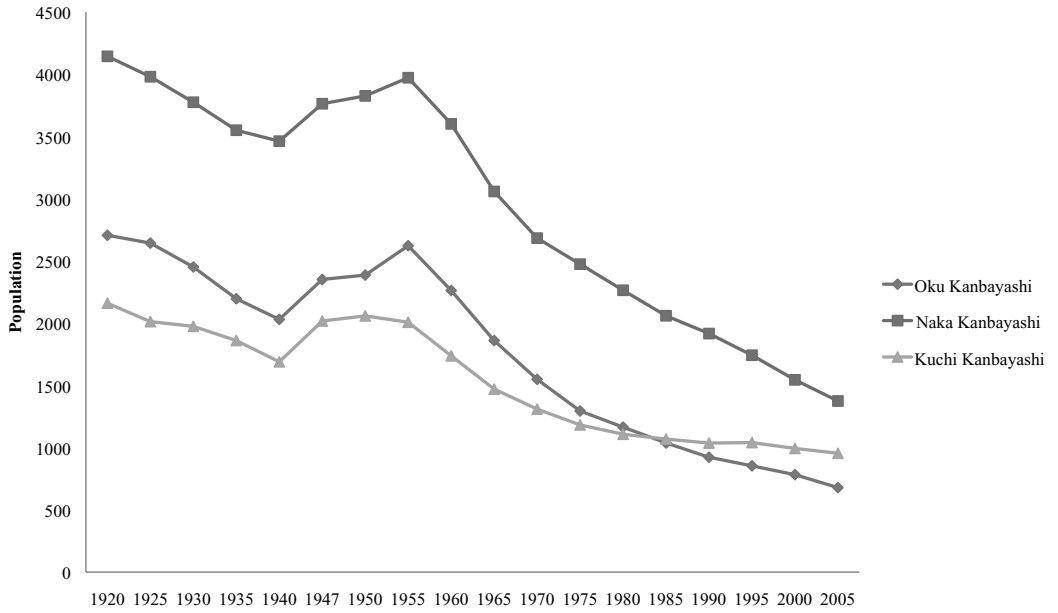
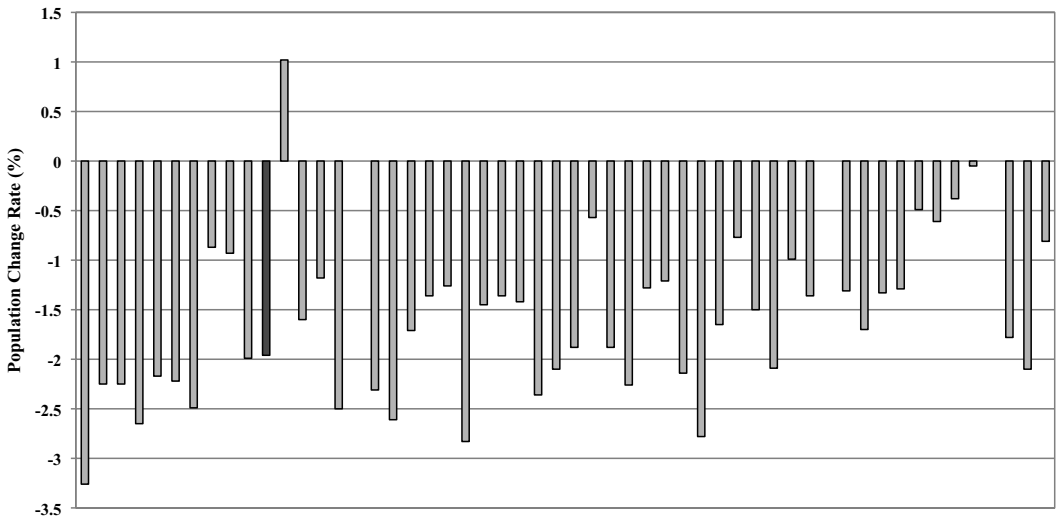


Figure 4. Average Annual Population Change Rates for 51 villages in the Kanbayashi Valley, 1987-2005



Villages are represented, left to right, in the same sequence as in Table 1.

Kusakabe is highlighted.

to be of *kaso* proportions, that is, severe rural depopulation). Nineteen villages suffered a higher rate of decline than Kusakabe (-1.96%), and as many as 40 villages (78%) experienced sustained decline of one percent or more. The laws of exponentiality suggest that, if sustained, a decline of 1% would result in a halving of population every 70 years or so, and a decline of just over 3% would see population decline by half every 23 years or so. Intuitively it might be suggested that population change rates are most unlikely to remain stable over such long periods, particularly in small populations, because exponential decline suggests continual halving and never reaching zero. Not only do biological factors stand in the way of this, but there is surely a time when communities realize sustainability cannot be maintained after a certain cut-off point, and demise follows quickly. In the case of Kusakabe, the simple fact that population is ageing so rapidly provides major social, as well as biological constraints to sustainability (Irving, 2006).

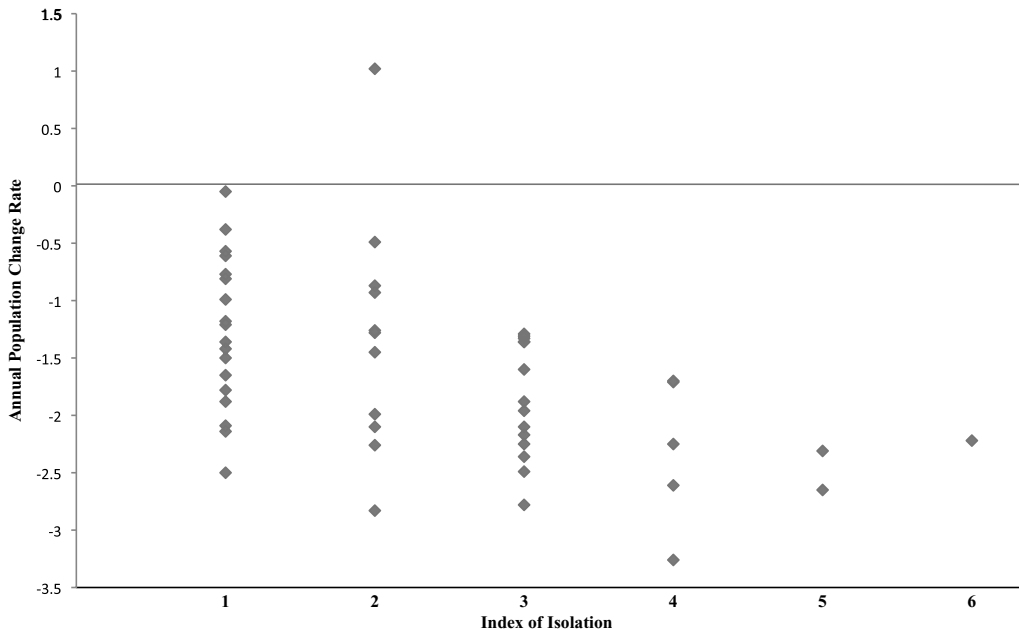
Although it is employed as a descriptive rather than a predictive device, it cannot be ignored that the 'line of best fit' (Fig. 2) for population change in most villages indicates an inexorable plunge towards complete village desertion. In the case of Kusakabe, extrapolation of the 'line of best fit' shows zero population would occur in approximately 2005 + 33-34 years, or just before the year 2040. For Ishikaya, the calculation suggests complete abandonment, or village extinction, in the year 2018. Of course, the whims of human activity rarely conform to statistical 'certainty', particularly where extrapolations into future events are concerned. On the other hand, R^2 values for the 'lines of best fit' for the Kanbayashi villages show a remarkably high degree of consistency in the pace of decline. As already indicated, almost three-quarters (72.5%) of all Kanbayashi villages have an R^2 value of 0.8 or greater. The values for Kusakabe, Ishikaya, and Ishibashi (Fig. 2) are 0.92, 0.85, and 0.82 respectively. For these and most other villages in the valley population decline is apparently relentless, and unless an agent of change is forthcoming in the near future, future existence does indeed appear to be finite.

Before following up this issue in the light of post-2005 data, two other observations can be made regarding the variations in population change rates between 1987 and 2005. The first, best witnessed in Fig. 4, is that the highest rates of decline appear in the villages more remote from Ayabe city centre

– towards the left-hand side of the graph. As already explained, the arrangement of the villages in this graph gives an *indication* of the actual spatial positioning of any one community compared to any other, but precise linear scaling is not represented. A more realistic visualization may be obtained from Fig. 5, where villages are arranged according to their score on the index of isolation. Again, however, since the scale is a nominal one, no meaningful correlation co-efficient can be calculated. Yet it is clear that the trend is for highest rates of population decline to occur in the most isolated villages. Equally, it is also clear that many of the least isolated, and least remote villages, are also prone to severe depopulation. Oda (Naka-Kanbayashi) and Hashiuecho (Yamaga) with isolation indices of 1 and 2 respectively are particular cases in point, since both had average annual population decline rates in excess of 2%. In this context, it must be judged that the population change rate for Kusakabe (-1.96), which is fairly remote and has a moderate isolation index of 3, is by no means untypical for the valley as a whole.

The second observation is also best visualized from Fig. 4. The graph shows some small clusters of villages where rates of population decline are less than in immediately adjacent communities. The first of these is around Kusakabe itself, and includes the neighbouring village of Torigaki – the only community in Kanbayashi to have experienced sustained population increase. An understanding of why Torigaki has achieved this may be crucial to assessing the chances of an up-turn in demographic fortune for the Kanbayashi Valley. Kusakabe, along with its other immediate neighbour, Ariyasu, appear unaffected by factors which may be arresting population decline locally, but the nearby villages of Konaka, Kawara, and Yamauchi do seem to be so influenced. A common factor may be the presence of Ayabe Onsen (hot spring) in the locale, near Yamauchi, which provides a number of employment opportunities for local people. Another cluster is of four village communities which once formed a settlement named Tokura, but were subsequently sub-divided. Tokura was, in the post-Edo era, the main administrative centre not just for Kuchi-Kanbayashi, but also the whole Kanbayashi Valley. It has also been the focus of major social infrastructural investment in recent years, including road widening and concomitant provision for new retail and residential development.

Figure 5. Annual Population Change Rates (1987-2005) and Indices of Isolation for 51 Village Communities



Population Change: 2005-2008

The publication by Ayabe City Office of population data broken down by one-year age-groups after 2005 allows a review of some of the issues just raised. The question of how long sustained and unrelenting population decline in so many villages can continue, for example, can now be looked at in the light of changes to population age structures. According to these data, 18.2% of the population of Kusakabe in September 2005 was aged 80 years or more. By 2008 this proportion had risen to 32.4%. In other words almost one in three of the village population now is just about to reach or has exceeded the age of average life expectancy for the nation as a whole. (In 2005 average life expectancy was 78.6 years for males and 85.5 years for females according to the National Social Welfare and Population Problems Research Institute). The point is that however *'genki'* many of this group may feel, most will concede that death cannot be far away, and that for the village as a whole the annual death rate will increase drastically over the next few years. With no indication yet of a matching growth in birth rate (extremely unlikely) or an influx of migrants it seems inevitable that the average annual rate of population decline will increase significantly in the near term.

This in turn must mean that the demise of village communities will occur sooner than predicted by the simple extrapolation of the linear line of best fit. It is impossible to say exactly when but, unless drastic change happens soon, Kusakabe will make a sudden nose-dive within the next twenty years towards complete abandonment.

One way to monitor whether or not such an event actually occurs is to recalculate average annual population change rates each year and note the direction and size of any difference. Table 2, therefore, compares population change rates calculated for the period 1987-2005 with those for the period 1987-2008. For Kusakabe the rate of population decline remained completely stable (-1.96%). In 23 villages the rate did worsen, but in most of these change was only slight, or very slight. Of interest are five villages where there was a more distinct worsening of the population change rate; Torigaki, Konaka, Katayama, Tokura Shimocho, and Tokura Mukocho. Torigaki was mentioned earlier because it was in 2005 the only village to have experienced sustained population increase. It was also in one of those clusters of settlements where rates of population decline were lower than for their immediate neighbours, and the other four settlements

Table 2. Kanbayashi Valley: Village Statistics (II)

	Average annual rate of pop'n change 1987-2005	Average annual rate of pop'n change 1987-2008*	Ratio of (0-14yr) children per 100 households		Ratio of (15-64yr) working-age popn. per 100 total popn.		Ratio of (80+yr) elderly population per 100 total popn.	
			2005	2008	2005	2008	2005	2008
Oku-Kanbayashi								
Ichikaya	-3.26	-3.07	0	0	0	0	41.7	40
Ogarachi	-2.25	-2.23	0	0	32.1	26.9	32.1	38.5
Tochi	-2.25	-2.27	0	0	37.5	40	12.5	25
Kowagi	-2.65	-2.47	4.9	2.6	17.1	16.9	25	30.8
Mitsuno	-2.17	-2.05	4.2	0	27.9	36.6	18.6	22
Koya	-2.22	-2.38	0	0	14.3	14.3	28.6	42.9
Yajiro	-2.49	-2.55	0	0	44.2	35.3	25.6	29.4
Konaka	-0.87	-0.98	9.1	3.2	48.9	48.2	20	24.1
Kawara	-0.93	-0.94	35.7	40	34.2	27.5	15.8	22.5
Ariyasu	-1.99	-1.9	4.2	4.1	22.6	25.3	21.5	26.4
Kusakabe	-1.96	-1.96	15.4	12	25.5	26	18.2	32
Torigaki	1.02	0.46	34.6	29.2	51.9	49.3	16	16.4
Shikoda	-1.6	-1.29	17.6	5.9	21.2	35.3	18.2	32.4
Yamauchi	-1.18	-1.09	21.7	15	50.1	50	17	13
Nagano	-2.5	-2.41	10.5	5.3	35.9	36.1	12.8	19.4
Naka-Kanbayashi								
Ichishi	-2.31	-2.38	0	0	0	0	34.8	42.9
Mizunashi	-2.61	-2.53	17.6	13.3	44.1	48.5	11.8	9.1
Ichinose	-1.71	-1.79	12	11.5	34.5	28.8	17.2	19.2
Nushi	-1.36	-1.36	23.8	13.6	56.5	48.3	8.1	19
Tsuji	-1.26	-1.24	56.3	50	33.3	34.9	17.8	25.6
Shimizu	-2.83	-2.52	0	17.2	27.8	27.1	16.7	20.3
Yuri	-1.45	-1.59	31.4	25	49	48.9	13.5	16.3
Yuge	-1.36	-1.26	34.6	11.1	36.2	38.7	10.1	19.4
Oomachi	-1.42	-1.48	12.8	12.2	42.6	38.9	16	16.8
Shiodani	-2.36	-2.28	0	0	6.7	9.1	33.3	18.2
Yamada	-2.1	-1.82	0	0	28.6	25	7.1	10.7
Takehara	-1.88	-2.07	31.3	31.3	36.6	36.8	7.3	7.9
Katayama	-0.57	-0.91	57.7	42.3	39.5	41.8	13.2	10.4
Tono	-1.88	-1.66	18.8	6.3	32.5	35	15	22.5
Baba	-2.26	-2.29	5.3	0	27.5	25.7	17.5	25.7
Ishibashi	-1.28	-1.21	31.8	17.4	45.1	45.5	19.7	24.2
Hikidani	-1.21	-1.28	12	12	52.9	46.3	16.2	19.4
Teramachi	-2.14	-2.09	20	15	27.9	34.3	11.6	20
Azura	-2.78	-2.56	5	5	37.8	39.4	21.6	18.2
Kodani	-1.65	-1.75	0	0	45.2	36.7	6.5	16.7
Nishiya	-0.77	-0.45	20	13	45.8	47.6	3.4	17.5
Hikiji	-1.5	-1.46	0	0	47.1	48.5	25	22.1
Oda	-2.09	-1.92	15.4	15.4	44.1	43.4	11.9	18.9
Mano	-0.99	-1.12	44.4	20	50	47.4	11.4	16.7
Daiichiku	-1.36	-1.49	8.1	9.7	47	45.8	16.6	23.2
Kuchi-Kanbayashi								
Tadacho	-1.31	-1.27	32.6	27.9	52.9	50	10.9	25.5
Tsukudacho	-1.7	-1.75	15.6	14	44.3	41.5	17.4	16.4
Takeyoshicho	-1.33	-1.39	12.3	10.5	38.2	37.5	16.9	22.7
Inecho	-1.29	-1.51	13.8	13.8	49.3	45.2	12.3	12.9
Tokura Nabatacho	-0.49	-0.56	23.2	20.3	55.6	54.6	11.9	14.2
Tokura Mukocho	-0.61	-0.88	25.9	17.9	45.9	42.3	12.2	15.5
Tokura Nakacho	-0.38	0.13	19.2	25.8	41.2	47.6	8.8	16.7
Tokura Shimocho	-0.05	-0.51	26.8	30	53.5	49.5	18.2	17.6
Yamaga								
Asahicho	-1.78	-1.78	19.5	15	36.3	37	17.6	18.5
Hashiuecho	-2.1	-1.99	23.8	19	38.2	39.2	5.5	15.7
Higashiyamacho	-0.81	-0.76	28.4	28.4	53.4	50.7	11.7	12.9

* Figures in bold indicate a lowering/worsening of population increase/decrease rates

in this group can be mentioned in the same context. In all five villages there were indeed a significant number of 'disappearances' from the Register of the very elderly between 2005 and 2008, due to death, transfer to hospital or care-home, or migration to live with relatives. In Torigaki the number was 5 out of 13 people aged 80+ in 2005 (38%); in Konaka it was 4/18 (22%); 5/10 (50%) in Katayama; 5/18 (28%) in Tokura Shimocho; and 3/9 (33%) in Tokura Mukocho. For the sake of comparison, the equivalent figure in Kusakabe was 2/10 (20%). The main point here is that even villages which may enjoy a relatively favourable location, and so which have avoided the rigours of severe depopulation in recent years, will be susceptible to a sudden, rapid decline in population if the post-war rural exodus left a legacy of an imbalanced, ageing community structure.

The very elderly, children, and the 'working' population in Kanbayashi

It is clearly of enormous value to know the basic age structures for all village communities so, using data from the newly available age breakdowns, three diagnostic indices have been devised: the numbers of people aged 80 years or more as a proportion of total population; the number of children, aged 0-14 years as a proportion of total *households*; and the ratio of people aged 15-64 years to total population. The results are presented in Table 2.

Between 2005 and 2008 42 villages in Kanbayashi experienced an increase in the number of people in their local communities aged 80 years or more. In 2005, in Japan as a whole, 5.4% of the population were in this age group and by 2030 it is estimated the proportion may reach around 15%. This translates to approximately 1:18 at present and 1:7 in future. In Kanbayashi 49 out of the 51 villages (96%) had a ratio of 1:10 or greater in 2008; 24 villages (47.1%) had more than one in five aged 80+ years; and in 12 villages (23.5%) the rate was more than one in four. Two villages – Koya and Ichishi (two of the three most isolated in the valley) – shared a rate of 42.9%. In Kusakabe the rate was 32%, almost one in three of the population there. Also of interest is the fact that the oldest person in the valley in 2008 lived in Higashiyamacho, aged a venerable 106 years.

Notwithstanding that the oldest person in Kanbayashi was closest to Ayabe city centre in 2008, the clear trend is for the most aged communities to

be in the more remote and isolated locations, furthest away from the City Office. Small hamlets such as Koya and Ichishi, both hidden away in the Tamba hills, are surely headed for total abandonment in the near future, and many other communities seem set to follow shortly after. If there is to be any reversal of this process then children are the obvious key to sustainability, but even a glance at the figures in Table 2 showing the number of children per 100 households suggests this option has long since been lost to most villages. True community sustainability would be achieved if there were a minimum of two children per household (in this sense the measure is a crude approximation of Total Fertility Rate), expressed by an index of 200 or more. At the very least an average of one young child per household (index = 100) would be hoped for since, after all, there may be elder siblings who intend to, or who are theoretically able to, play their part for a sustainable population in future. In Kusakabe, in 1965, the index was 106.25. By 2008 it had fallen to just 12. In twelve villages there were no young children at all. Although these are all located in the mid and upper reaches of the Kanbayashi Valley, there is no village in the entire valley with an index greater than 50. From 2005 to 2008 the average index for all settlements in the valley fell by six points, from 19.4 to 13.4. Only three communities – Kawara, Tsuji, and Katayama – could boast an index suggesting less than one in three households, on average, had a child aged 0-14 years. Inevitably, the loss of children in these communities led recently to the closure of the elementary school in Oku-Kanbayashi – an event felt keenly by all remaining inhabitants there, and a sure sign that for all village communities in the valley there is barely even a hint of future population sustainability.

Another key to sustainability is the maintenance of a fairly low dependency ratio or, put in another way, a relatively high proportion of total population in the 'working' age group – from 15 to 64 years. In an ageing country like Japan, which is losing population at the base and increasing at the apex of the population pyramid, the dependency ratio has been declining in recent years. In essence this means that fewer people are paying income tax to support an increasing number of elderly who are dependent on that assistance for health and welfare. In 2005 the proportion of total population in Japan aged 15 – 64 years was 66.1%. In the Kanbayashi Valley only nine village communities had a rate 50% or higher, with the top value just 56.5%. By 2008 these figures had fallen to just four villages, and a best

rate (for Tokura Nabatacho) of 54.6%. Two village communities had no people at all in this age group during this period (as well as no children). Most villages maintain values between 30 and 40%, but it is noticeable that villages closer to Ayabe city centre tend to have values between 40 – 50%, while those in more remote areas show values below 30%. This is probably explained by the fact that people nearer the centre find it much easier and cheaper to commute to full and part-time work opportunities there, and so a more balanced community demographic structure can be maintained. Even so, future demographic viability looks fragile.

Perhaps the most important observation to note from Table 2 is the direction of change of the ratio of working age population of villages between 2005 and 2008. Only 30 communities showed a decline, whilst 21 experienced an increase. Could this in any way indicate a positive trend for the future? The patterns in those communities which suffered losses in this age group can be explained mostly because people in their 60s crossed over the retirement age 'barrier' during this period, from 64 years to 65 years. In Japan as a whole this phenomenon will be especially apparent when 'baby boomers' make the same transition (from 2010). In one village, however, four young people in their early 20s 'disappeared' from the registers suggesting that the beast of the 'rural exodus' is still waving its tail. (This village, and some others subsequently referred to, should remain anonymous at this time for the sake of 'personal privacy'). Elsewhere there is evidence that young people in this generation are also leaving, but that the process is more 'drips and drabs' than 'exodus'. There are simply too few young people around at this time to constitute a major outflow in the near or medium term future. The 'exodus' of young people has long since finished.

In villages experiencing an increase in the 15-64 age group many can attribute this to the return (or entry) of people in their early to mid 60s. In one village, near Ayabe Onsen, there was an increase of four males in this age group, suggesting the return of *atotsugi* following a near-lifetime of work in the city. This would normally be regarded as a good thing because, after a somewhat lengthy delay, continuity of the household would seem to be assured. However, the fact is many of these individuals are entering the villages alone – without the companionship of either their spouses or their children. Wives have become affixed to city life, and offspring cannot understand the desire of their fathers to return to

a life where there are no convenience stores and where mobile-phone reception is at best haphazard or, possibly, non-existent. Separated, even divorced, fathers – who are themselves first sons and *atotsugi* – return to their home villages with a huge sense of responsibility for ensuring the continuity of ancestral property and family tradition because this is the way things 'should be'. They are inevitably recruited to the rank of village headman (nowadays referred to as *jichikai-cho*) because of their relative youth and vigour. It is a tough demand and, inside, many may feel that their guts are torn between the traditional role of inheritor that is expected of them as eldest sons, and the 'equality' between siblings guaranteed them in the post-war Japanese constitution. However, the sharing of rights to 'ownership' of the ancestral home and its farmland and forest holdings is now becoming an issue of the sharing of liabilities. The retirees who have returned, predominantly male, have not come back to the kind of inheritance that was once expected of them, and is now pleaded of them, because they know that they simply cannot meet the required assurance of sustainability of the household; let alone that of the village community as a whole. Their return to the village does not ensure sustainability because, simply, they return alone after retirement.

The sole exception to this pattern seems to be in the village(s) of Tokura – the former administrative centre of the Kanbayashi Valley. Here there are signs that not only people in their 60s are returning, but also people in their 30s are coming to live in this area. Although sustained population growth has yet to become evident, the fact that the municipal government has targeted Tokura for new housing and infrastructure, albeit on a limited scale, suggests that if anywhere in the valley is to hope for a sustainable future it is here.

Kusakabe and the future Kanbayashi landscape

It was argued in Part I of this paper that depopulation in Kusakabe has reached the point where future viability of the village can no longer be assured. It is clear now that the village is by no means alone in facing the prospect of complete abandonment. Some of the more isolated communities in Kanbayashi are already confronting this reality. *Satoyama* – the formerly carefully nurtured fields and forest land surrounding each community are turning to untended shrub land (Irving, 2005). The fine balance between man

and nature, set up over centuries of interaction, has now been upset. Village lands are becoming the domain of bears, boars, monkeys and deer, to the great frustration of the increasingly elderly human population who now struggle to compete for sustainable food sources. Abandoned homes collapse under the weight of heavy snowfall, and house plots soon revert to forest.

Such scenes are to be found now at the edges of the Kanbayashi settlement system, in the most remote village communities. What is clear is that these villages have a future whose years can be counted on the fingers of two hands, or possibly just one. This is despite the special designation by the Ayabe authorities of some of these communities as ‘the source of clean water’, and valiant attempts to revitalise them through incentives to attract newcomers. It is too little, too late. The only major rebuilding now is of family grave plots - a final tidying-up in preparation for inevitable death, or perhaps, metaphorically, the setting up of a permanent memorial to the old *ie* (family) system. Perhaps these communities are so remote that their loss will pass by largely unnoticed. A quiet death. What will be the reaction of the nation, however, when villages like Kusakabe, and so many of its neighbouring communities in the mainstream rural landscape also disappear?

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